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Wage Increases and Hours Worked

THE recommendation to its members by the National Union of Mine Workers executive committee to accept the National Coal Board proposals for settling the union's latest wage claim means that another increase in wages is impending, with far reaching effects not only on the coal industry, but on industry and trade in general. The resultant rise in the cost of coal is variously estimated at 2s.—4s. a ton on the pithead price and will seriously affect the railways among other coal users. At the same time, the Confederation of Shipbuilding & Engineering Unions general council has agreed to accept an offer of a wage increase by engineering employers, and London Transport railwaymen are to come into line with British Railway employees in receiving the 8 per cent. flat-rate increase. Apart from the inflationary tendencies of these wage increases, to which we drew attention last week, none of them appears to be associated in any way with increased production. In coal mining, in view of the urgent necessity for increased output, the board has asked the union to agree to a further postponement of the second week of paid annual holiday, already conceded in principle, and to accept a week's extra pay instead, though no clause is announced regarding longer hours of work. Besides this, there is still some hesitation on the miners' part to accept the Italian mineworkers whose presence is so essential to increased output. On the railways, the N.U.R. resolution to withdraw from the agreement made last July with the Railway Executive for voluntary working by certain operating grades of a 48-hr. week, forgoing of the second week's holiday, and certain other measures to save manpower, is unfortunate. The resolution was passed before the recent wage award was agreed on, and in view, it is understood, of a somewhat poor response to appeals to voluntary working and of the fact that the holiday season is now over, the termination of the agreement may not make very much difference. Further, the depleted operating staff is already working long hours of overtime in difficult winter weather conditions. Nevertheless, the N.U.R. and other unions so far have given no sign of recognising the vital necessity for increased production, without which all including wage earners will suffer.

Taxation and Profits

A STUDY by the Federation of British Industries of problems of industrial finance, involving analysis of the balance sheets of 80 large and small representative concerns in 1938-49, leads to the conclusion in a report * published that the amount of undistributed profits put to reserve in the last few years has been inadequate to maintain industrial capital. As the proportion of distributed profits fell over the same period, it is claimed that this shows that the levels of prices and profits have not been excessive, but, rather, too low to sustain the burden of taxation with present methods of computation and to maintain productive capacity. This is due to the system of taxing profits on the unwarranted assumption—on which we have commented more than once—that stable prices and tax-free depreciation allowances suffice for renewal or replacement of fixed assets—whereas the rise in replacement costs has been far too great for depreciation allowances to cover them. Unless, as the report points out, industry can set aside from the profits remaining after taxation sufficient funds to meet replacement costs, capital will be depleted and production eventually must decline.

British Transport Commission Statistics

THE staff statistics of British Railways for the four-week period to October 7 show that there was a reduction from the preceding period, No. 9, in footplate staff and engine cleaners; wastage was not made good by recruitment, and total numbers at the end of the period were 90,502, with a turnover of some 1,200. In the group of operating staff entitled "guards, signalmen, shunters, porters, ticket collectors, etc." total numbers fell to 115,972 from 116,728. There was also a fall in the "goods and cartage," locomotive running shed, and carriage and wagon cleaner and examiner groups. In the civil engineering and the signal and telecommunication groups of conciliation maintenance and construction staff, there were slight increases. The latest analysis of British Railways passenger journeys, that for the calendar month of August, shows an increase of 48 per cent. over 1950 in total full-fare journeys, with increases of 228 and 22 per cent. in this fare category in the Eastern and Southern Regions respectively. In view of the heavy London suburban traffic of these Regions, it seems that the London Passenger Charges Scheme was the cause of this and of the 24 per cent. reductions over August, 1950, in total monthly return-ticket journeys, and of 43 per cent. in the Eastern and 37 per cent. in the Southern Region.

Restoring a Venezuelan Railway

IN February of this year, torrential rains caused so much damage to the former British-owned line between Caracas, the capital of Venezuela, and La Guaira, its port, that its restoration was for some time in doubt, particularly as the road between the cities, which were separated for over three weeks, had been rapidly repaired. After studying the question, Dr. Cardenas Faria, the General

* "The Effects of Inflation on Industrial Capital Resources." Published by the Federation of British Industries, 21, Tothill Street, London, S.W.1. Price 6d.

Manager of the Venezuelan Government Railways, was convinced that goods traffic would be sufficient to make the line pay and estimated that the 3,000,000 bolivars needed to repair it would be earned in the first year of operation. The cost of carrying freight from La Guaira to Caracas should be 10 bolivars a ton by rail, against a possible 15-20 bolivars by lorry; moreover, although a high-speed road is being built it will have gradients inconveniently steep for the transport of heavy freight by lorry. Dr. Cardenas decided that because of these considerations the reconstruction of the railway would benefit the public and commerce. As the line, which is 23 miles long and 3-ft. gauge, could be deemed an extension of the port area, Customs sheds could be built not only at La Guaira but also at Caracas, thus relieving congestion at the port. The Ministry of Communications agreed to the rebuilding and work has begun and is expected to take about nine months.

Overseas Railway Traffics

FOLLOWING a £23,478 improvement in the month of July, Victorian Railways receipts for August rose by £45,412 to £1,931,917. Gains were made by all three spheres of activity for which traffics are shown and the most substantial improvement was in railway receipts which were up by £45,166 at £1,922,933. Road motor services' receipts, at £1,574 contributed £85 to the increase during August and electric street railways, at £7,410, were up by £161. The advance in Antofagasta (Chili) & Bolivia traffics continued during the fortnight ended November 16, with successive improvements by £39,150 to £124,080 and £86,150 to £173,890. On the aggregate, receipts were up by £2,555,376 at £5,630,500 for the current 46 weeks. Costa Rica traffics for October were C 1,244,055, as compared with C 1,015,192 for the same month of 1950, and since July 1 have made a C 586,239 advance to C 4,947,302.

A New South African Rates Structure

EXCEPT that advocating the establishment of a permanent rates tribunal, the recommendations of the Newton Committee on railway rating policy in South Africa are to be carried out as soon as possible. The committee was appointed in November, 1947, under the chairmanship of Sir Charles Newton, former Chief General Manager of the L.N.E.R.; the main points of its report were given in our June 16, 1950, issue. It recommended that, although a flexible rating structure should remain, the rates of the lower—rather than the higher—classified commodities should be fixed at the maximum which the traffic can bear. The Administration should not charge for a service less than the direct cost of providing it, lest other railway users have to make up the loss. The South African Minister of Transport has said that unanimity has largely been reached on the report between commercial, industrial, agricultural and mining interests and Government departments. Its adoption will mean the rationalisation of the whole railway rates structure of South Africa. Because of the far-reaching effects which a new structure will have on the country's economy, it will be some time before it can be drawn up and put into effect.

Meeting S.A.R. Traffic Demands

IF the difficulties which the South African Railways were experiencing in handling goods were realised, the South African Minister of Transport has declared, commerce and industry would not show impatience. While the railways had to make up arrears in rolling stock requirements, traffic has increased by fifty per cent. since before the war. The annual increase in traffic over prewar days was about 2½ per cent., but the present increase is about 4½ per cent., and in the first six months of this year it was 6½ per cent. Unfortunately, as the Minister has said, the acquisition of the means of transport to meet such rapid increases is not immediately possible. The South African Railways are doing everything possible to expedite the handling of goods, and postponing less important work. Capital expenditure has been confined to making the railways as efficient as possible. "No critic," said the Minister, "can say that we have not made adequate provision for capital expenditure on the railways. The amount spent is not the only criterion. We can obtain £37,000,000 next year, but our difficulty is in spending it, because it has been so difficult for us to obtain the necessary material."

Growing Traffic on Belgian Electrified Lines

ELECTRIC traction between Brussels Midi and Charleroi was inaugurated just over two years ago, the official opening having taken place on November 19, 1949. At the present time passenger traffic between those places is reported to be 25 per cent. higher than it was before electrification, even though in steam days the number of travellers to and from Charleroi handled at Brussels Midi alone had reached 20,000 a day. The increase has been gained by an intensified service and acceleration of all trains, and probably has been assisted by the remodelling of the timetable to give standardised departure times. These facts, quoted by M. Musyck of the Belgian National Railways in a special number of *Trains* devoted to the administration's 25th birthday, echo the success of the Brussels-Antwerp scheme of 1935. Patronage of the line was doubled after electrification, and today over 20,000,000 passengers are carried in a year. Traffic at rush hours still tends to increase, so that in recent years some of the locomotives built for the Brussels-Charleroi services have been drafted to the Brussels-Antwerp line, where they relieve pressure on the multiple-unit sets by working heavy formations of passenger stock at certain times of the day.

Southern Region Punctuality

PUNCTUALITY of both steam and electric passenger train services in the Southern Region received a setback in the four weeks ended August 11 and freight train working, though still good, was also adversely affected. The latest results, compared with those for previous periods are:—

AVERAGE MINUTES LATE ARRIVAL (WEEKDAYS)

	Four weeks ended						
	1945 Dec. 29	1946 Aug. 10	1947 Aug. 9	1948 Aug. 7	1949 Aug. 13	1950 Aug. 12	1951 Aug. 11
Steam	8·06	2·10	2·20	1·64	2·39	2·03	2·60
Electric	4·97	1·33	1·25	0·94	1·11	0·78	1·22
Freight	25·6	8·4	4·5	2·3	2·5	2·2	3·0

Mr. S. W. Smart, Superintendent of Operation, commenting on these figures in the Southern Region edition of *British Railways Magazine*, attributes this falling-off to an increased number of exceptional incidents. A cable fire at Victoria on Saturday, July 28, which completely shutdown the signalling system throughout Victoria for over an hour during the peak period, caused delays amounting to over 30,000 min. and, among other exceptional incidents, the severe thunderstorms on July 22, 23, and 31 upset the signalling at a number of places and caused widespread delay. Though these results do not compare favourably with the usual high standard of Southern Region punctuality, they would undoubtedly be welcomed in some of the other Regions.

Third Class Sleeping Cars

THE new British Railways third class sleeping cars which are described elsewhere in this issue are a reversion to a more orthodox form of construction, after the six experimental cars brought out by the L.N.E.R. in 1947 for the Kings Cross-Edinburgh service. These cars, described in our July 11 and August 15, 1947, issues, incorporate eight single- and eight double-berth compartments arranged on an ingenious "interlocking" plan. As eleven of the new vehicles are also intended for the East Coast route it would seem most unlikely that more of the experimental type will be built. The L.N.E.R.-built cars accommodate only 16 passengers, compared with 22 in the new cars; against this must be set the higher revenue charged (32s. 6d.) for their third class, single-berth compartments. Both vehicles offer the amenities of full bedding and washbasin for every compartment.

British Railways and A.T.C.

At the centenary dinner of Tyer & Co. Ltd. last week Mr. John Elliot, Chairman of the Railway Executive, made it clear that British Railways have accepted the principle of adopting automatic train control although, because of the very heavy capital expenditure that would be necessary, it will not be possible to instal it on a large scale for some time to come. At the same function, a brief report of the speeches at which is given elsewhere in this issue, Captain Reginald Terrell, the Chairman of Tyer & Co. Ltd., stated that his company had offered to supply a complete installation of the Integra system of inductive automatic train control to British Railways so that it could be tested under operating conditions. An illustrated technical description of this system was published in our January 19 issue. It is in general use throughout the Swiss Federal Railway system. It is known as the Metrum system, and is based on transmitting signals by induction. Installation of this equipment commenced in Switzerland over fifteen years ago.

Road, Rail and a Railway Subsidy

THE case for the retention, in the national interest, of long-distance road and rail freight haulage under one ownership is well put by a correspondent signing himself "Empirical" in a letter to *The Manchester Guardian*, reproduced on other pages this week. "Empirical" gives two reasons for such retention. One would be the ability of long-distance road hauliers when unrestricted to any degree, as they were before the war, to skim the cream of lucrative traffic, leaving the rest to the railways. This was unfair to the railways, with their costly fixed installations, compulsory safety devices and far heavier overheads generally, and, by compelling them to carry the less profitable heavier traffics, tended to deprive them of the financial ability to improve their plant. Nevertheless, despite financial stringency, the four main-line companies up to the war managed to maintain their plant at a high level of efficiency. The other reason for retention under one ownership is that, in the words of "Empirical," that "in a sensible organisation . . . it would be inept to divorce long-distance road transport from the railways" because rail and road are complementary. Both are essential to the national economy, but competition between them is wasteful. It is especially wasteful with the present shortages of materials and manpower and with the restriction on capital investment in improvements.

What "Empirical" did not say, and what we have long held, is that now it is too late to hand one form of transport back to private, and retain the other in public ownership. To do so would be to invite the return of the conditions which led to the institution of the "Square Deal" campaign before the war. The present position, from the railway viewpoint, might be worse than it was then, for the railways have borne the brunt of the changes inevitable in unified ownership. Also there have been, for instance, far-reaching closing of branch lines and reorganisation of freight terminals and measures for common rail/road commercial representation. To undo much of what has been done would inevitably do commercial damage, mainly to the railways, which would certainly not be in the interest of the public, or of railway users, or of the national economy generally. With railways suffering under serious economic disadvantages, it would be even more difficult than now, short of a subsidy, to find the money to maintain them at a reasonable level of efficiency.

Although the maintenance of the railways is vital to this country, for strategic as well as for economic reasons, it is impossible to agree with the suggestion of a railway subsidy by—rather surprisingly—a Conservative M.P., Miss Irene Ward, embodied in her letter to *The Times*, also reproduced elsewhere in this issue. The railways, she states, must be maintained, with provision for increased traffic (with which the roads will not be able to cope) "when normal conditions of life return"—by which she appears to mean increased economic activity, including industrial production. If that is so, Miss Ward overlooks the fact that generally traffics are still greater than prewar. At the same time, Miss Ward contends that the railways "must provide freight and passenger services which are not an exceptional liability to our commercial life or to one section of the travelling public," and that railwaymen must be better paid. It is not clear what is meant by services which are an exceptional liability, but it seems that reference is intended to the passing on of the costs of say passenger travel, to certain classes of passenger by increasing fares, with a corresponding procedure in the case of goods rates. If so, there is no warrant for Miss Ward's suggestion that any service is an exceptional liability. Costs have been passed on as fairly as seemed possible and practicable, with increases in passenger or freight rates accordingly as these seemed due for increase having regard to the rates for other forms of transport.

To enable the railways to pay their staff more, and to avoid railway charges which are an exceptional liability to commercial life, she suggests that it would be wiser to "face inescapable national expenditure at Budget level rather than at trading level." This is in effect a suggestion of a railway subsidy, which would not solve the problem. Transport costs must be passed on somehow, and it is better that this be done as far as possible by the orthodox financial methods prescribed in the Transport Act, 1947, which enjoins that nationalised transport must pay its way—even although this may be possible only by handling on increasing costs to transport users. She rightly stresses the importance of adequate capital investment in the railways.

On the subject of further possible economies on British Railways, raised by Miss Ward, Mr. John Elliot, Chairman of the Railway Executive, points out that these are possible, though it is not possible by economies or other means to recoup the immense increase in outgoings occasioned by the latest wage increase to railwaymen. In fact, new ways of economising, including mechanical appliances to save manpower, are constantly under consideration and adopted whenever practical. In the case of the 8 per cent. wage increase, however, the Railway Executive could only seek to pass on the cost by asking for authority to increase freight rates.

Transport Publicity

PUBLICITY is in effect salesmanship, forming an essential part of any business, whether highly competitive or a monopoly. Indeed, one might say that there is no such thing as a monopoly when considering the spending power of the public, for, although transport for example provides an essential service, transport undertakings are at the same time in very open competition for pleasure business with various forms of entertainment such as the cinema. Mr. C. Grasemann, formerly Public Relations & Publicity Officer, Southern Region, British Railways, expressed the view in a paper to the Ulster Section of the Institute of Transport that transport publicity in this country has generally lagged behind that of ordinary trade publicity, and that the proportion of its spending power compared with expenditure and receipts has been considerably smaller than in the case of, say, makers of patent medicines, alcoholic beverages, and so on, which are very dependent on competitive advertising and must keep the names of their products continuously before the public. Monopoly, coupled with the fact that transport is to such a large extent a necessity rather than a luxury, could not avoid producing regular receipts, especially to the railways, without any special publicity efforts.

Mr. Grasemann, who has had many years of experience in the publicity field to draw on, recalled the early days of transport advertising when both railway and road undertakings were concerned not so much with their regular services, but rather with special facilities which could never become known through the medium of the timetable. Though a necessary part of any transport concern timetables were really no more than catalogues of what the

undertaking had to sell. Public services, moreover, must cater for every class, and for that reason it was not an easy task to produce advertising matter to appeal both to the educated and uneducated, rich and poor, straight-laced people and those modern in outlook. They must aim to cater over a reasonable period for every type of taste. Different forms of transport, too, had different problems to deal with, and what was quite profitable for air might not be for rail or road. Railways had at their disposal a large number of excellent sites, seen by many thousands of the public daily, while every booking office in the country was a publicity selling point.

After dealing at some length with the advantages of different kinds of advertising media, including press and poster publicity and printed folders, the author then referred to the public relations side, which is concerned more with trying to form general goodwill among the public rather than actual selling. Public relations work, remarked Mr. Grasemann, called for a good deal of courage, and it was a profession much abused both by those outside and those inside it. If the P.R.O. told the press something wrong the whole world knew about it the next day. Publicity had certainly come to stay, forming a part of the national and even international economy, although, roughly speaking, public relations work was still in its infancy. Always they must beware of " cutting out some of this expensive advertising " just because the harm done was not at once obvious.

Gold Coast Railway

WE have received from Mr. W. H. Salkield, General Manager, Gold Coast Railway & Harbour Authority, a copy of his administration report for the year ended March 31, 1951. An important event during that year was the transfer of responsibility for the supervision of all Gold Coast ports—other than Takoradi which was already under railway administration—lighthouses, and shipping masters' duties from the Customs & Excise and Publ c Works Departments to the Railways & Harbours administration. The other ports concerned are Accra, Winneba, Cape Coast, Saltponds and Keta; these are only surf ports and import and export cargoes are carried from and to vessels lying in the roadsteads by surf boat. At Accra there is a small breakwater with two 30-cwt. steam cranes for handling heavy lifts from the surf boats, and ample transit shed accommodation is provided. There are six lighthouses. Even more important was the change in the Gold Coast Constitution and the first general election in February, 1951. Despite these changes not one day's work was lost, and railway and harbour work proceeded normally.

Gross tonnage, passenger journeys, gross earnings, working expenses, and net profit all continued to show increases during the year under review. The following are some of the principal results:—

	1949–50	1950–51
	Thousands	
Railway—		
Goods tonnage carried	1,699	1,966
Passenger journeys	4,678	5,451
	£ thousands	
Goods receipts	1,832	1,975
Passenger receipts	409	491
Total gross receipts	2,347	2,571
Operating expenditure	1,933	2,130
Net profit	184	310
Takoradi Harbour—		
Revenue	461	503
Expenditure	192	223
Other Ports, etc.—		
Revenue	—	66
Expenditure	—	12

The report emphasises the healthy state indicated by the profit realised after payment of interest and sinking fund charges, shown above, but points out that the rapid economic development of the colony means a similar development in its main transport system, and " the administration is faced with a programme which can only be described as staggering." Financial reserves must be built up to meet the costs of new lines and additional equipment on a rising market. A ten-year development programme has been submitted to the Government involving over £17,000,000, excluding any provision to meet the cost of rail and port requirements in connection with the Volta River scheme, and this is expected to add at least another £10,000,000 and to double the tonnage of traffic now handled.

In May, 1950, a regular first class sleeping car service was inaugurated on the Takoradi-Kumasi line, with coaches converted from day use; it has proved an unqualified success. It is obvious that similar services will have to be provided on other lines. More important is the confident surmise that 75 per cent. of the passengers carried would have travelled by road had these facilities, including shower baths and light refreshments, not been provided by the railway at moderate cost.

The first year's control of the additional ports is considered to have been most successful. At Takoradi Harbour 16 per cent. more passenger traffic was handled than in the previous year, despite the excellent air service between London and Accra five days a week. The Takoradi Harbour extension works, estimated to cost about £2,250,000, made an excellent start, and about 23 per cent. of the new permanent works were completed during the year.

Motive power was increased by six 0-8-0 tank locomotives, seven additional engines being added and one taken out of traffic. Four new coaches and 97 goods vehicles were erected during 1950-51. Throughout the year the administration was handicapped by a shortage of 25 per cent. of its established senior service operating and maintenance staff, mainly in the civil engineering branch. One result has been a considerable delay in the preparation of drawings and estimates.

Derailments in India

IN October, 1950, the Indian Railway Board deputed Mr. W. G. Latham, Deputy Chief Engineer, Madras & Southern Mahratta Railway, and Mr. E. W. Isaacs, Deputy Chief Mechanical Engineer, East Indian Railway, to investigate and report on all derailments that had occurred in the country during the previous 18 months, and to recommend measures for minimising such accidents in future. From information supplied by the Statistics Branch of the Indian Railway Board's office, statements were tabulated of the annual number of derailments of trains other than passenger trains from 1938-39 to 1949-50, by railways. To take into account relative intensity of traffic, numbers per million engine-miles as well as total numbers were shown. To quote the report: " A similar investigation was attempted into the statistics of passenger train derailments, but the results are not conclusive." It appears that the investigation was limited almost entirely to goods yards.

Particulars were obtained from individual railways of all derailments during the 18 months ended September 30, 1950; these were analysed from all directions. The two officers also toured many railways and discussed with staffs of all grades the methods of working, design, and maintenance of yards and rolling stock, with the object of assisting staffs to work more safely and avoid derailments. All information obtained in statistical form is tabulated in the report under three headings, one referring to each of the six-monthly periods covered. Each derailment was coded under the following heads for analytical purposes: (1) gauge, (2) type of train or yard, (3) railway, (4) month of occurrence, (5) cause, (6) time of day or night, and (7) whether at a large station. The code numbers were punched on cards and analysed in a Hollerith machine.

Analysis (4) shows generally better results during cooler months. Relative safety in working of large yards varies greatly in the different yards, due in the main to the design of the yard relative to the traffic it has to handle. The report suggests that liability to derailment be borne in mind when alterations to yards are considered. Another statement shows the numbers and percentages of the totals of all derailments (1) of running trains, (2) in large, and (3) in small yards in three groups of railways (a) broad-gauge lines, (b) the northern, and (c) the southern group of metre-gauge lines in India. The derailments are shown as analysed by main causes, namely (1) track defects, (2) locomotive defects, (3) carriage and wagon defects, (4) faults of traffic staff, (5) faults of power staff, (6) obstruc-

tions, and (7) miscellaneous causes. The outstanding cause of derailments in yards is shown to be faulty working by the traffic staff. Many derailments of trains are due to defects in rolling stock, particularly in the northern metre-gauge group.

More detailed analysis reveals that the most common track defect is split or gaping points, due either to their condition or to faulty working. Points should be designed and maintained so that they cannot easily be split even by carelessness. The investigators are convinced that some form of spring-loaded point is superior to that worked by the weighted tumbler lever. The spring point closes the tongue against the stock rail with a snap, if it is reasonably maintained, and it is also trailable without damage or derailment, whereas the weighted lever tends to cause "two roads." They recommend all railways to standardise some form of spring point and fit it everywhere. All points should have stretcher bars to prevent the tongues from jumping when the load is on the heels. The need for efficient maintenance is stressed as essential. The importance of prominent fouling marks is also emphasised, and it is suggested that the number of wagons a siding will hold be cut or painted on its fouling mark.

The number of derailments caused by locomotive defects was found to be low; they were generally due to spring or spring suspension, tyre or wheel defects. Similar remarks apply to carriage and wagon stock, though defects in the brakes of these vehicles also caused many derailments on the broad-gauge systems. The matter of defective spring camber is dealt with in detail in the report, and the resulting recommendation is that there should be no variation in free camber beyond $+\frac{1}{4}$ in. and -0 for broad-gauge, and beyond $+\frac{3}{16}$ in. and -0 for metre-gauge stock. Other details of carriage and wagon spring and brake gear are also discussed as being fruitful causes of derailments. Broken axles, usually caused by hotboxes, is another but less frequent source of derailment, and examination of journals by Magnaflux plant is recommended. Defective axleboxes, axleguards and horns are often the result of rough shunting. Generally, more frequent inspection is considered desirable and better training for outdoor vehicle examiners is urged.

The principal faults of the traffic staff are considered to be (1) uneven wagon loading, (2) wrong manipulation of points, (3) rough shunting, (4) side-collisions, (5) split or gaping points, and (6) obstructions. Fault (2) is the most common cause of derailments, followed by faults (3) and (5); these were investigated in considerable detail. One recommendation is that, where one pointsman has to control a number of hand-worked points, it may be better to group these points with a ground frame, preferably six of them together. Visibility and lack of detectors or positive indicators at the ends of long runs of rodding mitigate against large groupings of points. Inadequate lighting of yards is the outstanding reason for bad visibility, and some standard brightness of lighting is suggested.

Under the heading of miscellaneous causes, "cattle run over" is the most common in India where trains are concerned, but in yards many derailments have to be classed as "no cause given." Among the other recommendations made are that (1) vehicles turned out by a workshop should be inspected and passed by outdoor train-examining staff before passing into service; (2) causes of derailments should be analysed periodically at administrative level and follow-up action instituted; and (3) in considering the relationship between speed and derailments, with special reference to turnouts of various angles, the investigators' opinion is that further theoretical and practical research should be undertaken, to ascertain at what stage dangerous conditions occur and to suggest limits of speed for various conditions.

The last appendix (No. IX) to the report shows that during the 18 months under review there were 12,993 derailments in India. Of these, 56 per cent. were due to traffic staff faults and 8·3 per cent. to track defects, 7·6 per cent. resulted from carriage and wagon defects, and another 7·6 per cent. from obstructions on the track; 6·5 per cent. were caused by faults of the locomotive staff, and 1·3 per cent. by locomotive defects. The remaining 12·7 per cent. are classed as "miscellaneous causes."

Freight Movement on British Railways

(By a Correspondent)

THE tenth issue of *Transport Statistics* covers the four-week period to October 7, when freight traffic tends to rise towards a peak which it reaches in periods 11 and 12. Compared with the corresponding period of 1950, originating tonnage increased by 492,000 tons (2·2 per cent.). The main contributions to this increase came from the Western Region—282,000 tons (7·7 per cent.)—and the Scottish Region—78,000 tons (3 per cent.). Ton-miles increased in the higher proportion of 4·4 per cent., the average haul of 76·4 miles for all classes of traffic being over a mile longer. The table below shows how the extra work was divided between the "heavy" Regions.

FREIGHT TRAFFIC, FOUR-WEEK PERIOD TO OCTOBER 7

Region	Tons originated (000)	Increase per cent.	Ton-miles (millions)	Increase per cent.
London Midland	6,440	0·9	662·6	5·1
Western	3,945	7·7	334·9	2·0
Eastern	3,558	−0·1	380·0	3·4
North Eastern	5,157	0·8	185·4	5·4
Scottish	2,693	3·0	186·6	4·8
All regions	22,490	2·2	1,834·0	4·4

The Western Region figures contrast sharply with the others in the table, because it forwarded 6,000 fewer wagons of merchandise, but 28,000 more wagons with minerals and coal which would travel for relatively short distances. In all Regions the number of wagons loaded with merchandise was less by 33,000 (2·8 per cent.); mineral loadings varied little, while coal loadings rose by 29,000 (2·3 per cent.). The average wagon load of 8·49 tons at starting point was larger by more than quarter of a ton. The all-line average was spoiled by poor loading in the London Midland Region, which averaged 8·13 tons for all traffic and only 3·82 tons for merchandise. Seeing that the Region forwards nearly twice the quantity of merchandise originating in either the North Eastern or Eastern Region, there is no apparent reason why it cannot lift the wagon load to their level of 4·5 and 4·2 tons respectively.

The London Midland and Western Regions worked fewer freight train miles, but kept their train engines longer in traffic, without getting much effective work done. In a train engine hour they produced many fewer net ton-miles and wagon miles than the North Eastern and Eastern Regions. The London Midland improved its 1950 figures slightly; the Western failed to do so, but improved.

The records of freight train speed are remarkable. The British Railways' average of 8·49 m.p.h. was unchanged. The North Eastern and Scottish Regions both registered 10·55 m.p.h., an advance of about a third of a mile on last year's speed. Though the Western Region's speed dropped from 8·89 to 8·69 m.p.h., it was a shade higher than the Eastern Region's improved return of 8·62 m.p.h. The London Midland Region could move its freight trains at only 7·14 m.p.h. Its 1950 speed of 7·3 m.p.h. was painfully slow and the further loss of mobility may be due partly to an increase in train load from 175 to 187 tons.

Each survey of *Transport Statistics* since March has shown a poor operating performance in the London Midland Region. The loss of mobility there is the main problem confronting the Railway Executive. Judged by statistics, the current weakness is the latest phase of an evolution which has been in progress since the 1923 amalgamation. The tonnage of traffic has tended to decline and the length of transits to extend. The former London, Midland & Scottish Railway had a greater density of traffic than the London & North Eastern, which in turn worked more ton-miles per route mile than the Great Western. After 1933 the Great Western set the pace in freight movement, with the L.N.E.R. running a close second. In comparison the L.M.S.R. began to have indifferent operating results, especially when the volume of traffic revived in 1937. The London Midland Region has inherited its inability to adapt working arrangements to new conditions and seems to stand in need of sweeping changes in organisation and management.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Transport Integration

November 17

SIR,—Neither in my letter in your October 12 issue, nor in my answer to Mr. Wilson in your November 9 issue did I mention statistical or costing *methods*, or their evaluation. His latest letter evades the only point—a minor one in a much wider setting—on which he previously challenged me.

As far as it is relevant, and as far as it goes, it supports the views expressed in my first letter regarding comparisons between road and rail achievements in costing. Certainly it does nothing to invalidate my assertion that costing of given vehicle journeys is practicable and regularly practised. That is fact, not opinion, and it loses nothing of its truth simply because it is not within Mr. Wilson's experience.

On the strength of the belief that he knew better, he dismissed my principal submissions, which in no way depended on that point, as of no value. Perhaps he will kindly read my letter again. He will find plenty in it which will give him more legitimate food for debate than he chose on a first reading.

I think comparisons between Mr. Wilson's field of specialist activity and mine are best avoided—and not especially in my interest. I prefer to hold the view that, in the ultimate scale of values, provided we use the gifts we have to the maximum, each in his right sphere is no more and no less useful than the other.

Yours faithfully,

FREDERICK SMITH

65, Hallowell Road, Northwood

The Edgware Road Derailment

November 13

SIR,—I have only just read your July 6 issue containing the report of the inquiry into the accident at Edgware Road, London Transport Executive.

In the Inspecting Officer's remarks a reference is made to the fact that the lengths of the overlap and approach locking distances on the signal concerned were most inadequate for the speeds at which trains could approach the signal. In view of the great attention which has always been given to such points by the Signal Engineers of London Transport and its predecessors, this conclusion would seem, on the face of it, to be a serious reflection on this department. A few historical comments, which throw some fresh light on the subject may, therefore, not be out of place.

In 1927 the station was rebuilt and resignalled for the direct lines which it was proposed to tunnel from the west end of the station to Willesden Green, for which the Metropolitan Railway had powers—subsequently allowed to lapse. This resignalling was fully described in your July 22, 1927, issue.

Because of the dense traffic which would have converged on this station extremely close headway working was a necessity; by calculation it was found that the optimum headway could be arranged by laying out the signalling for speeds of 20-25 m.p.h. and imposing a permanent speed restriction accordingly, thus anticipating by twenty years the principle behind the L.T.E. speed control signalling on the Piccadilly Line.

As described in your journal at the time, the following permanent speed restrictions were imposed:—

West of Praed Street Junction	20 m.p.h.
Praed Street Junction to west end of Station	10 m.p.h.
At any point in station	5 m.p.h.
East of station to Baker Street	25 m.p.h.

According to the Inspecting Officer's report, the only speed restriction now in force is 10 m.p.h. over Praed Street Junction only; in view of the accent which the signal engineers of London Transport have always placed on "100 per cent. safety or nothing" it hardly seems likely that they would knowingly have been a party to this state of affairs!

We are thus left with the questions: "Were these original speed limits later abolished by the Operating Department as being (apparently) unnecessary, in ignorance of the reasons behind their imposition, and without consulting the Signal Engineer?"

If this is so, it would put a fresh complexion on the case and would relieve the Signal Engineer of all blame for this accident; it can hardly be held to be his responsibility to check the current list of permanent speed restrictions as each new issue of the working timetable is published if he has not been advised of impending amendments. The signalling was perfectly safe for the speeds for which it was designed.

Yours faithfully,

R. A. PASCALL

72, Quarry Green, Kirkby, Lancs.

Suburban Services

November 23

SIR,—From December 3 the Eastern Region is to reinstate certain Kings Cross suburban trains. They include the 11.54 a.m. and 9.54 p.m. Hertford North trains and an additional train at 8.15 p.m. to Hatfield serving New Southgate, Oakleigh Park and New Barnet.

This is an improvement on the bad conditions which I described in my letter in your issue of today's date.

Yours faithfully,

B. PERREN

43, Greenway, Southgate, N.14

Railway Staff Problems

November 21

SIR,—It was interesting to read your comments on this subject in your November 16 issue, particularly respecting senior clerks and supervisors whose responsibilities, in many cases, have increased as the result of nationalisation although the ratio of their scale of remuneration continues to diminish. For example, the margin between the bottom and top of the Class 5 scale is now £151 compared with £120 before the war, and that in the Class 1 range is £32 10s. against £30 in 1939.

The position of Class 1 clerks in many offices in this Region is steadily approaching stagnation because no special "A" or "B" posts are available and the consequent infiltration of staff from other Regions to occupy Class "C" and higher paid vacancies, with no possibility of equating the position by a compensatory transfer, is causing the utmost concern. Vacancies in certain administrative posts are being filled by candidates who find the circumstances and conditions so totally different from their past experience that they have, of necessity, to rely to a great extent on the senior clerks for guidance, and this applies to departments other than Operating.

The senior clerks' morale is not improved by the fact that the advent of the newcomers obliterates all prospects of imminent promotion in their own office and it is substantially lowered when it is found their applications for vacancies in other Regions are consigned to the waste-paper basket without investigation of the sound qualifications put forward.

Yours faithfully,

CLASS 1 CLERK

London Midland Region, Euston, N.W.1

The Scrap Heap

Prizes for Tidy Stations

In the 1951 competition for cleanliness and tidiness 16 stations in the North Eastern Region of British Railways have won first prizes. Second class prizes were awarded to 44 stations, third class prizes to 157, and certificates of commendation to 121.

Flood Rescue

One day last week, at 10.50 a.m., a private firm telephoned the North Eastern Region of British Railways at Malton, Yorkshire, pleading for the urgent collection of 20 tons of grain offal threatened by flood water, and, because a railway motor was not then available, an appeal was made by a member of the station staff to British Road Services for assistance. A motor was immediately despatched to the firm, and by 11.50 a.m. the same day a large load was transferred to the goods yard, the whole of the consignment being cleared without any flood damage. A letter of appreciation came from the firm.

Sheep Traffic

When eighteen cattle wagons were needed to convey sheep at Hope Station on the Dore & Chinley line of the London Midland Region it created a record for any station in the Hope Valley since the line was brought into service 58 years ago. They were needed to take over 500 sheep and lambs to places in East Anglia and the Midlands, and British Railways made special arrangements to ensure that the animals should complete their journeys within twelve hours of loading. A record number of sheep and lambs, over 2,000 in all, passed through the Hope market.

Oldest Working B.R. Locomotive

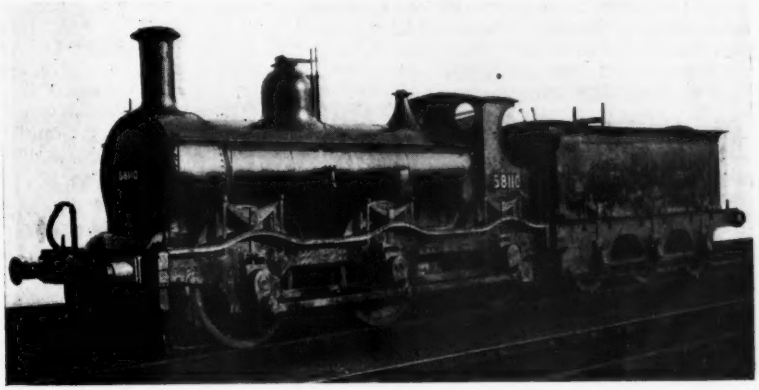
After 82 years of service London Midland Region locomotive No. 58110 has gone into Derby Works for breaking up. She is the last of a fleet of 315 locomotives of the "700" class built at Derby to the design of Matthew Kirtley between 1863 and 1874 and was used on freight train working between London and Derby. Originally numbered 778 by the former Midland Railway, she was subsequently numbered 2630, and later 22630. Her present number, 58110, dates from the nationalisation of railways in 1948. Outstanding features of the locomotive were her distinctive round top boiler and a double frame.

"Mind if I open the window?"

[Reproduced by permission of the proprietors of "Punch"

De-mole-ition Gang

The South African Railways, according to a correspondent, are probably the only railway in the world to employ men to deal with a special underground threat. This threat comes from moles whose constant burrowing under sleepers causes the line to sink. This is particularly frequent on the Cape Town—Port Elizabeth route, where fences are planted deep in the earth to stop the moles coming near the line. But at the same time many do get through, and gangs of men are employed to deal with them.



L.M.R. locomotive No. 58110 about to be broken up at Derby after 82 years in freight service

Horse Laugh

German railway authorities have just made it clear to a firm in Göttingen which prepares anatomical specimens that as far as they are concerned a horse is a horse.

The firm exported to Luxembourg the skeleton of a large charger, carefully wired together and mounted on a stand, which was required for veterinary instruction. The transport bill contained an item for "wagon-cleansing charges." The firm objected, reinforcing their remarks with some physiological observations.

The railway replied that it was not concerned with physiology but only with the clearly-stated terms on which horses were carried by rail. It got the money.—*"Peterborough" in "The Daily Telegraph."*

Hunger Strike

(A hundred railway horses "down nosebags" at Manchester)

T'was a November day in the stables;
Outside was a bit of fog
And the food they had dished up for dinner
Dobbin says wasn't fit for a dog.

The hoss-boss came round as per usual
And enquired "are there any complaints?"
When down went the nosebags like winking
And off went the age-old restraints.

"There's not enough salt in the mangers,
The bran mash is watery, too,
And, as for the rest of the menu—
You can take it from us—it won't do!"

"We don't like the taste of the oats, sir,
And something's gone wrong with the hay
And, unless we can get satisfaction,
We've decided to call it a day."

Then the hoss-boss, considerably rattled,
Sat down on a bucket to think;
He remembered the lore of his childhood
Pertaining to horses and drink.

He'd heard about "horses for courses"
And decided things couldn't be worse,
So he studied up "courses for horses,"
To see how it worked in reverse.

Well, horses are friendly and noble,
And seldom inclined long to shirk;
So, when the boss stepped up their rations,
They sensibly went back to work.

The moral is—don't take for granted
That man can for ever hold sway
O'er the rest of his dumb fellow-creatures,
For even a horse can say "Neigh."

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

PAKISTAN

Deviation at Dacca

The Governments of Pakistan and East Bengal have decided that the railway which at present passes through the centre of Dacca shall be diverted towards the eastern outskirts of the city. Other proposals considered included road overbridges and raising the railway above street level.

VICTORIA

Use of Heavy Fuel Oil

Heavy residual oil is now being used on oil-burning locomotives. The change from light furnace oil was made because there is no shortage of heavy oil and it is also cheaper. There were problems to be overcome before it could be used efficiently. For example, heavy residual oil has almost twice the viscosity of light furnace oil and will flow freely only at temperatures above 70° F. Consequently it can be used only with special types of pumps and heating systems.

Pre-heating the heavy oil involved increasing the oil storage at Newport Workshops from 90,000 to 360,000 gal. by building three more 90,000-gal. tanks, and providing facilities to pass the oil through heat exchangers for preheating before being loaded into 9,000-gal. wagons. In addition, four 12,000-gal. tanks were removed at the North Melbourne Locomotive Depot and replaced by two 50,000-gal. tanks. An oil-fired locomotive boiler was also installed to provide steam for the heat exchanger.

Additional storage and heating appliances were installed at country locomotive depots. A 24,000-gal. oil storage was installed at Wodonga depot for fuelling the four Class "S" locomotives, two of which have already been converted to oil burners. At the main depots, steam pipe lines have been placed round the sheds so that locomotives can be lit up from cold.

CANADA

Opposed-Piston Diesel Locomotives

Three diesel locomotives ordered by the Canadian National Railways for passenger service between Montreal and Waterloo *via* Granby went into service on November 25. The locomotives, built by the Canadian Locomotive Co. Ltd. at Kingston, Ontario, have 1,000-h.p. six-cyl. opposed-piston diesel engines and are capable of a top speed of 60 m.p.h.

The service runs from Montreal Central, over Montreal & Southern Counties lines beyond St. Lambert to Granby, thence over C.N.R. lines from Granby to Waterloo.

The locomotives are the first C.N.R. diesels to have opposed-piston units, built-in steam generating plants for train heating, and six-wheel bogies to spread the weight of the locomotive on light rails, bridges and culverts. Each unit is 56 ft. 4 in. long overall, 10 ft. 1½ in. wide, and 15 ft. 2 in. high.

New Rates Increase Sought

The Canadian railways on November 1 applied for a new freight rate increase which, added to the increase which they already have been seeking, would raise rates about 10 per cent. The two increases would add about $45,000,000 a year to the national freight bill.

In July a temporary 12 per cent. increase was granted, leaving the rest of the case to be determined at hearings beginning on November 12. The railways now ask to have a proposed 14 or 15 per cent. increase changed to one of 17 or 18 per cent. The 12 per cent. interim increase will yield about $54,000,000 a year. It is the third major increase since the war, and follows one of 21 per cent. in 1948 and another of 20 per cent. in three instalments in 1949 and 1950.

ARGENTINA

Further Increase in Fares

Further sharp increases in fares come into force on November 15. They range from 50 to 70 per cent., and for the moment do not affect suburban sections. The price of sleeping car and Pullman tickets on all lines has been standardised at 50 pesos for any distance, with the exception of Pullman tickets on the General Mitre Railway which will cost 35 pesos. The single fare from Buenos Aires to Córdoba by the "El Serrano" day express, for example, has been raised from 45 to 76·5 pesos. From Buenos Aires to Mar del Plata on the General Roca Railway the increase is from 33·40 pesos to 52·70 pesos. On the General Belgrano Railway, the single fare from Buenos Aires to Rosario has been increased from 25·20 pesos to 39·90 pesos.

Stainless Steel Coaches

The General Roca Railway has placed in service twelve stainless steel air-conditioned coaches built by the Budd Company of U.S.A. They will be used between Buenos Aires and Mar del Plata in two express trains of six coaches each. In each train there will be four Pullman cars, one American bar coach, and one combined Pullman and luggage car. The journey will be made in under five hours at an average speed of 80 km.p.h.

The coaches are 26 metres long and weigh 55 tons. The exterior panelling is of stainless steel. They are completely air-conditioned and have fluorescent lighting, electrically-operated doors, and adjustable revolving seats. Each seat has an individual radio connection with the central radio reception unit in the bar coach. The toilet compartments are automatically sterilised by ultra-violet rays, and there are separate ladies' powder compartments provided.

The stock is similar to that in use in the United States and also on the Central of Brazil Railway (described in our August 11, 1950, issue). After the summer season in Mar del Plata the coaches may be used on the service to Bariloche. A special run was made on November 9 to Mar del Plata. The 400 km. were covered in 4 hr. 55 min. in each direction, and on some sections a speed of 120 km. was attained without undue vibration, as a result of modifications made in the suspension of the vehicles when they were adapted to the broad gauge in Argentine works.

BRAZIL

Electrification

The electrification of another section of the Santos-Jundiai Railway, between Sao Paulo and Santo Andre, has been inaugurated. Electrification of the section from Sao Paulo to Paranapiacaba should be completed next year.

The President has asked Congress to authorise special credits for building and equipping a central thermo-electric station at Candiota, which will supply power for the partial electrification of the Rio Grande do Sul Railway.

Main Line Diversions

The Central Railway has opened two diversions on the main Rio-Sao Paulo line, between Marechal Jardim and Nhangapi and Pindamonhangaba and Taubate. On the first section, 13 km. long, 27 curves have been reduced to seven, and haulage capacity of the diesel-electric locomotives has been increased from 1,200 to 1,800 tons. Over the second section the number of curves has been reduced from 22 to five, and while haulage capacity increased from 500 to 1,800 tons. Between Barra de Pirai and Taubate, 220 km., the journey time of goods trains has been halved, as they no longer have to be re-formed three times.

Modernisation and New Works

The Administrators of the Salte Plan have been authorised to place £200,000 at the disposal of the Parana-Santa Catarina Railway to enable it to continue its 1951 programme of improvements. The Ministry of Transport has authorised the building of a railway from the port of Mossoro to Fortaleza, capital of the State of Ceara.

The Brazil-United States Commission for Economic Development has submitted its first project for modernising the rolling stock of the Central, Paulista and Santos-Jundiai Railways. It covers the installation of standardised automatic couplings and compressed-air brakes and the acquisition of 1,100 wagons, at a cost of £5,160,000. With the possible exception of a few wagons all the material will be purchased abroad.

The total required in cruzeiros for improving railways and ports, equivalent to £200,000,000, is to be raised by an internal loan, made up of compulsory contributions from those whose yearly income tax exceeds £100, and of a 3 per cent. tax on excess profits.

SYRIA AND LEBANON

Damas-Hamah & Extensions Railway

A Syrian commission is to seek the views of the Government of Lebanon on the transfer to the Syrian and Lebanese Governments of the Damas-Hamah & Extensions Railway which serves both countries. The possibilities to be discussed are nationalisation and, alternatively, a negotiated agreement. Failing conclusive results the Syrian Government appears determined to nationalise that portion of the system within Syria.

The system comprises 270 route-miles of standard-gauge and 93 route-miles of narrow-gauge lines (3 ft. 5¼ in.); the narrow-gauge includes a 20-mile rack section on the Beyrouth-Rayak line across the Lebanon Mountains. By an agreement with the Syrian Government, terminated on July 1, 1948, the company worked the sections of the former Baghdad railway in Syria—between Maidan Ekbesé, on the Turkish frontier, 887½ miles from Haydarpasa, opposite Istanbul, and Akhtérin, also on the Turkish frontier, and also between Kamechlié (Turkish frontier) and Tel Kotchek (on the Iraqi frontier), 154 route-miles in all. Since July 7, 1947, the company has leased the Lebanon State Railways, totalling 140 route-miles of standard-gauge lines.

WESTERN GERMANY

Connection with Denmark

The passenger service between Hamburg and Copenhagen *via* Grossenbrode and Gedser gives journey times of 9 hr. 19 min. north- and 9 hr. 27 min. southbound. This compares with 9 hr. 12 min. north- and 9 hr. 34 min. southbound by the "Holland-Scandinavia" and 9 hr. 54 min. and 10 hr. 5 min. respectively by the "Nord Express," both of which are through trains *via* Fredericia and the Nyborg-Korsor train ferry.

The new service to some extent replaces the pre-war Gedser-Warnemunde train ferry, as Warnemunde is in the Russian Zone. For the time being, railway vehicles are not conveyed by the ferryboats, as there is as yet no suitable ferry dock at Grossenbrode. The German Federal Railways connection consists of a diesel railcar covering the 88 miles (largely single line) between Hamburg and Grossenbrode in slightly over 2½ hr. with four stops. Over the Danish State Railways, the steam-hauled boat trains are allowed 130 min. for the 111 miles from Gedser to Copenhagen and 140 min. in the reverse direction. The sea crossing takes some 3 hrs., against 80 min., between Nyborg and Korsor.

IRELAND

New Railcars Arrive

The first two of the 64 diesel railcars being built for C.I.E. by A.E.C. Limited were unloaded at North Wall, Dublin, on November 19. They were taken to Inchicore and will undergo trials before going into service shortly, probably on the Waterford-Dublin line. The remainder of the fleet will be delivered at the rate of three or four a month.

New C.I.E. Wharf at Waterford

A new reinforced concrete wharf, built at a cost of £138,000, has been opened at Waterford. It provides 22 ft. 8 in. at low water and can take three vessels, instead of two at the old timber wharf.

Publications Received

Model Steam Locomotives. By Henry Greenly. Revised by Ernest A. Steel. London: Cassell & Co. Ltd., 37/38, St. Andrew's Hill, E.C.4. 8½ in. × 5½ in. 320 pp. Illustrated. Price 15s.—This standard text-book on the construction of model locomotives was first published in 1922, and has now been revised to bring the work up to date. All details of locomotive design are dealt with fully in the text, line drawings, and folding plates. Numerous photographs of model locomotives of many different types and gauges are included, and this new edition should prove a valuable reference book for the model engineer and railway enthusiast.

Locomotives of the French Railways. Paris, 17e: Editions P.P.C., 39, Boulevard Berthier. 6 in. × 9½ in. 48 pp. Illustrated. Prices fr. 450.—This third pictorial review of French Railways motive power brings the survey begun in the two earlier albums as nearly up to date as is possible in any record of a continuously developing subject. As well as adding two modern types the steam section of the book covers articulated locomotives from the Nord and Est classes early in the century to the Algerian Beyer-Garratts of 1938-39. Electric traction subjects include the Co-Co with Oerlikon 50-cycle motors, and in looking at its companions in the album the reader may well ask, how many of them will reappear in later years in a similar mechanical form but transformed internally with 50-cycle equipment. Diesel locomotives are represented by two shunters, and the four railcars in the album are all straight diesels. Every locomotive or railcar is represented by a full-page photographic illustration, facing a page of tabulated technical particulars, with a dimensioned drawing of steam locomotives.

Uses for Tufnol.—The uses for Tufnol cover a wide field, extending into almost every field of industry, and some of its many applications are described and illustrated in a booklet published by Tufnol Limited. The material is non-metallic and combines excellent electrical insulating properties with mechanical strength, also, this material is unaffected by climatic temperature changes and can be machined to shape by users or supplied in sheet, tubes, or rods, and is suitable, among other things, for gearwheels, electrical equipment, and as a acid-resisting material.

A Philips Arc Welding Brochure.—A brochure containing technical information on the "48" electrode, together with many graphs, photographs, and tables, has been issued by Philips Electrical Limited. The text deals with the theoretical as well as the application aspects, and includes the functions of the coating of Type "48" electrode, resistance to hot cracking, welding procedure, mechanical properties, and mild-steel and high-speed welding. Tables, dealing with every type of application for which this electrode is suitable, contain useful technical data clearly set out and well illustrated by drawings explaining graphically the sequence of welding and the preparation of the material.

Notre Métier: Special Electric Traction Number. Paris 9: 11, Rue de Milan, 52 pp. Illustrated. Price fr. 100 (2s.).—The French National Railways have issued a special number of their magazine to cover a century of electric fraction development. Its cover bears illustrations in colour of a number of S.N.C.F. electric locomotives. The reading matter runs to about 75,000 words, accompanied by some 200 illustrations ranging from Robert Davidson's electric locomotive built in Great Britain about 1840, the first single-phase 50-cycle locomotive built by Oerlikon in 1904, and several three-phase locomotives built in Germany and elsewhere in 1900-1909, to present-day 50-cycle commutator motored locomotives as used on the Aix-les-Bains—La Roche-sur-Foron electrification. The historical section is comprehensive and covers thoroughly the principal stages in technological evolution on the Continent, and in the U.S.A. and Great Britain.

Transport in Glasgow and District

Proposed electrification and new halts recommended by the Glasgow & District Transport Committee

Transport in Glasgow and District

Recommendations of Inglis Committee include electrification, provision of new halts, and greater co-ordination between rail and road services

IN its report to the British Transport Commission on the provision of an efficient economic transport service in Glasgow and district, the Glasgow & District Transport Committee, under the chairmanship of Sir Robert Inglis, has made recommendations which Lord Hurcomb, Chairman of the Commission, describes as an important contribution towards solving the Glasgow transport problem. The Glasgow & District Transport Committee, appointed in August, 1949, was asked to consider any improvements of the existing facilities provided by the railways, the Scottish Bus Group, and by the Glasgow Corporation, which would appear to fulfil the policy of integration of inland transport laid down by the Transport Act, 1947, having regard to the return on any capital outlay involved.

Previous planning proposals for Glasgow and the Clyde Valley, studied by the Committee, were the Bruce, Fitzpayne, and Abercrombie (Clyde Valley Regional Plan) Reports. The second of these deals in detail with transport and is complementary to the first; it was summarised in our September 10, 1948, issue.

The main recommendations of the Inglis Committee are:—

(*a*) that rail and bus fares should be brought more into line and tickets made interavailable or combined as required;

(*b*) that most of the suburban and interurban lines in the area be electrified and new rail connections provided;

(*c*) that new stations or halts to serve housing developments be constructed;

(*d*) that new amenities at railway stations for rail-bus passengers be provided;

(*e*) that all Corporation tram and bus services outside the city boundary be discontinued and replaced by services provided by the railways and Scottish Bus Group;

(*f*) that unnecessary duplication of road and rail services be avoided;

(*g*) that new roadways, including a traffic tunnel under the Clyde and, possibly, a new bridge, be constructed in accordance with the recommendations of previous planning reports which the Committee endorses;

(*h*) that the tramways throughout the city be replaced gradually by buses, and

(*i*) that Queen Street and Buchanan Street stations be combined.

The Committee makes it clear that full use should be made of existing or developed facilities before embarking on new capital expenditure. It considers that the new surface electric railways to be accommodated in the centre of new highways, advocated in the Fitzpayne Report, would undoubtedly give great additional transport facilities, but necessitate great expense. It agrees with the proposal in that report to electrify the existing railways, but proposes electrification to a greater extent; this would require much less time and money than works entailing heavy new construction and wholesale displacement of property.

More Traffic by Rail

The first priority, the Committee states, should be given to placing the railways in a position to attract, on the merit of service, speed and cost, greater traffic. The major problem which faced the Committee was the congestion of traffic on the roads. It found that the more the existing efficient road services attract custom, the more they intensify the problem. If fares were at a comparable level, many users of the road services would undoubtedly return to the railways, which can provide greater comfort, greater safety, and greater speed of travel. Given equivalent values of service—allowing, for example, for extra amenities provided for rail travellers—more use of the railways should be the primary objective.

The Committee states there is a great potential suburban traffic awaiting attraction to the railways. If the railways are to help to serve the new communities, new halts should be begun immediately (see accompanying map); they would be of simple construction, with a small shelter but no waiting room.

The existing lines have enough capacity without new construction to cater for three times the present suburban and interurban rail traffic. It will be possible to increase the number of steam trains in every peak hour by twelve (excluding long-distance trains), giving an added seat capacity of about 11,000 an hour; and, after stage one of the electrification scheme (mentioned below), by thirty-seven trains, giving additional seating of over 26,000 an hour above the present capacity. The change from steam to electric operation will take some years to complete; meanwhile, the Committee recommends that the steam services be amplified to serve the outer suburban area and the new halts.

Electrification Scheme

In the conclusion of its Report the Committee points out that considerable integration has already been accomplished between the former L.N.E.R. and L.M.S.R. but that more intensive suburban and interurban working, introducing speedy and frequent services, is handicapped by steam working and by the lack of connecting links and new halts.

Having considered the inherent advantages of electrified rail services and the strong probability that their speed, cleanliness, and comfort will attract new traffic and influence the future siting of new towns and housing schemes, it puts forward an electrification plan for the Clyde Valley in two stages (190 route miles), at an estimated net cost of £10,236,540, based on prices ruling in April, 1951. There are also third and later stages, to which no priority is given; they cover the electrification mainly of former G.S.W.R. outer-suburban and Ayrshire coast lines.

The Committee estimates that 70,000 tons of coal a year would thereby be saved, and that the capital outlay involved will be justified by increased revenue and reduced operating costs. The 1,500-volt d.c. overhead system is envisaged. Trains would be of three-car units, consisting of motor coach, trailer (possibly steam stock converted), and driving trailer.

This scheme includes the provision of eleven new halts and a new link from the Kings Park line to the Circle line west of Cathcart Station which would be enlarged, but excludes other works, regarded as most desirable but relatively less urgent, such as the combination of Queen Street and Buchanan Street Stations (similar to the proposal in the Bruce Report); the conversion of Queen Street Station into a bus terminal and garage; and the building of an intermediate station under West Campbell Street (possibly named Blythswood) which, the Committee believes, would attract large passenger traffic.

The immediate plan for electrification does not include a connection by stair between Queen Street Low Level and the Corporation Underground, the construction of a new station on the Glasgow Central Railway near the Kelvin Hall, or the re-opening of Finnieton Station, all recommended as a later stage of the process of attracting more traffic to the railways.

The Committee disagrees with proposals for a new terminus south of the Clyde to replace both Central and St. Enoch Stations in view of the hardship which this would cause to their suburban passengers. It also rejects the suggestion in the Abercrombie Report that Central should handle all south and west traffic and St. Enoch all that from the north and east for the reason that this arrangement would require costly alterations. Central is the most up-to-date Glasgow terminus, with a satisfactory layout and good amenities; St. Enoch, although its layout is not good, is fairly commodious and has modern signalling. Both stations should therefore remain.

Queen Street Station, with its 1½-mile approach down from Cowlairs at 1 in 42 and its cramped layout, is recognised to be most unsatisfactory—the annual

cost of providing and working banking engines alone is put at some £15,000. Buchanan Street is also unattractive and could handle far more traffic. Combination of the two termini in a new station on the enlarged Buchanan Street site is therefore proposed in a later stage; this would entail a new spur from Cowlairs on a 1 in 65 down gradient. The enlarged Buchanan Street would have 14 platforms.

Connected Rail and Bus Facilities

Apart from developing rail facilities as outlined, the Committee makes proposals for co-ordinated rail and bus operation to provide a connected service with maximum convenience to the public. It strongly recommends a series of traffic exchange centres at which bus passengers would change to rail on the inward and *vice versa* on the outward journey to curtail the road traffic into and out of the city and reduce travelling time.

If this were done, combined through bookings with complete interavailability would be available; where alternative bus and rail services exist, the Committee says that the fares between these exchange points by either service should be the same. It gives us an example of interchange service the experimental arrangement by bus and rail serving the new Pollok housing estate by combined weekly tickets. Other obvious railheads recommended outside the city for the interchange of traffic from bus to rail, and *vice versa*, include Helensburgh, Balloch, Dumbarton, Barrhead, Milngavie, East Kilbride, Coatbridge, Motherwell, and Hamilton.

The co-ordination of these bus and rail services, and the corresponding extension of Sunday trains where necessary, should be carried out immediately as the roads from these areas into Glasgow are now saturated with traffic. Full co-ordination will entail allowing the bus passenger to use station amenities, joint timetables, arrangements for light luggage, and ensuring that railway and bus staffs at the exchange points are fully acquainted with both services.

The Committee considers that for city-ward traffic, provided a frequent and efficient railway service is available, the railways should be preferred to the buses for distances over five miles, and that when economically possible, the bus should be used as feeder to the railway. This would make it unnecessary for so many buses to converge on roads to and through the city. The Committee notes, however, that many long-distance stage-carriage bus services meet a public need and reach the small communities and farms, and it would be a hardship to the public to withdraw them.

Non-stop long-distance bus services should, in general, be limited to take the surplus demand over railway capacity. Although the railways, working to reasonable capacity, would relieve the roads of much traffic, a large traffic by road would remain. The Glasgow Corporation transport services, so far as they serve the city itself and operate within its boundaries, are shown to be essential to the economic life of the city and must be continued.

As it is wasteful to have three more or less unrelated agencies of transport to serve the city and immediate hinterland as at present, the Committee recommends that outside the city boundary all road passenger transport should be under one direction, the Scottish Bus Group, and most of the corporation's services be withdrawn—electrification of the railways would draw a large number of passengers from the roads, permitting the Scottish Bus Group to reduce its services running into the city. The three agencies should co-ordinate their operations to eliminate overlapping and wasteful competition. With the goodwill and support of each agency a great improvement would be achieved.

S.N.C.F. Experimental Rectifier Locomotive

Rapid construction of new type for trial running on a 50-cycle single-phase supply

A Bo + Bo locomotive that has recently begun trial running on the French National Railways 50-cycle electrified line from Aix-les-Bains to La Roche-sur-Foron, represents a new stage in a programme of developing motive power for use on industrial frequency supplies. As originally announced (see our June 17, 1949, issue), the scheme embraced three prototype locomotives, two with 50-cycle a.c. traction motors and one using d.c. motors supplied through a motor-generator set. The first has been in service since October last year and was described in our December 29, 1950, issue.

With the introduction of the new Bo + Bo, the problem is being approached in a different manner, namely by the use of d.c. traction motors in conjunction with rectifiers. The locomotive has been developed and built by the Alsthom Company within a year, the mechanical design incorporating parts common to existing Bo-Bo classes and the traction motors also being basically a standard d.c. type. It is interesting to note that at the time the recent B.T.C. report on "Electrification of Railways" was being prepared, the decision to experiment with a rectifier locomotive had not been taken.

Two six-anode pumpless steel tank mercury arc rectifiers feed the series-parallel circuit of four traction motors. The rectifiers have grids for arc-suppression and overload protection, but they are not used for output voltage control. Only one motor combination is used, all the main control steps being effected on the a.c. side, but there are two stages of field diversion. The oil-cooled main transformer has two secondary windings. One of these is tapped, and can be connected so as to assist or oppose the voltage of the fixed winding; the resultant appears across a separate auto-transformer with its ends connected to the rectifier anodes and its mid-point to the power circuits and cathodes.

The output to each motor circuit may reach 1,500 V., and series-parallel connection of the traction motors was necessary because they are a standard type wound for a nominal voltage of 675.

There are eight tappings on the transformer, but small series resistances connected in the power circuit on the early notches enable intermediate steps to be provided for starting. Some advantages of this control system were referred to in a description published recently in the S.N.C.F. periodical, *Notre Métier*. The voltage on the tapped transformer winding being 1,500, the currents to be broken are moderate and standard contactors can be used. A wide range of speeds can be provided with a small number of contactors by using the reversible connections of the tapped winding to assist or oppose the fixed secondary voltage.

The traction motors are nose-suspended, a flexible drive being considered unnecessary for the maximum speed of 62 m.p.h. to which the locomotive will be restricted on the Aix-les-Bains to La Roche-sur-Foron line.

The bogie pivots are mounted on conical rubber seatings at both ends and form, in effect, swinging links similar to those in the S.N.C.F. Co-Co locomotive No. 7000, the weight of the body being taken by lateral leaf springs. Short links mounted on Silentblocs carry the axleboxes. The locomotive weighs approximately 80 tons and has a continuous rating of 2,660 h.p. at 37 m.p.h., corresponding to a tractive effort of about 26,500 lb. No provision is made for running on 1,500 V. d.c. as has been done in the other prototype locomotives already built or under construction.

Mechanised Appliances for Permanent Way Maintenance—4*

Development of equipment for permanent way depots and for maintenance gangs

Driving elastic spikes with a Consolidated Pneumatic Tool Co. Ltd. pneumatic hammer, during a relaying with pre-assembled track at Maidenhead, Western Region

AT a pre-assembly depot, lengths of new track are assembled and loaded, and lengths recovered from a renewal are unloaded and dismantled. On the other hand, at reclamation depots materials received from renewals are stripped, classified, and either reclaimed for use elsewhere, or disposed of as surplus to requirements. As the introduction of pre-assembled renewals of plain line is comparatively recent, some improvisation and development of existing permanent way depots has taken place on the various Regions, but as a result of the experience gained, Regional Engineers are now able to decide on the most satisfactory way in which the different parts of such a depot should be arranged.

Pre-Assembly Depot

A typical pre-assembly depot for this purpose generally takes the form of a pair of stillages each of which consists of a table formed by one or more lengths of old track on the ground. These tables are marked for the correct sleeper spacing, so that new sleepers can be laid squarely across them at the correct distance. The new rails can then be placed in their fastenings and roughly squared.

A stillage is generally of sufficient length to allow two 60-ft. lengths of track to be assembled at one time, and an end stop is provided to assist in squaring the rail ends. Where possible, the new sections are loaded on to wagons directly they are assembled, and a travelling crane is in attendance on an adjoining line to assist in placing sleepers and rails and to load the assembled sections. In a normal working day, as many as 20 lengths of track can be assembled and loaded by a gang of 12 or 14 men and one crane.

For the work of tightening the fastenings pneumatic or electric hand tools are available. Where bull-head track is being assembled, the chairs are previously fixed to the sleepers at a sleeper treatment depot, but with flat-bottom track the baseplates are placed in position on the sleepers, and lightly fixed, before the rails are placed. A pneumatic spike-driving tool, fitted with an adaptor, which prevents the spike being driven too far, is then used to secure the rails.

After a renewal, the old sections of track are either returned to the pre-assembly depot, where they are dismantled, or sent to a siding renewal, where the old track can be relaid direct from the wagons with a track relaying unit or crane. If the material has been dismantled at a depot, it is sent to another site for further use in renewing a secondary line by manual methods, or to a Regional reclamation depot, if the material recovered is not required for use in the District covered by the pre-assembly depot. Where chairs have to be removed from the sleepers, use is made of a power wrench for taking out the chair screws.

Points and crossings and junctions usually are assembled at a depot lay-out ground, or on a site convenient for the renewal, the component parts being sent from the works in which they have been manufactured. Care is taken to make the assembly conform with the

Matisa Equipment Limited portable rail saw

* Previous instalments of this article appeared in our issues of November 2, 9, and 23

Mobile weed-spraying equipment by Aerostyle Limited

measurements at the renewal site. This allows all the parts to be numbered and marked, so that delay in placing each section during the actual renewal is reduced to a minimum. Once the layout has been passed by the inspector, it is disconnected into as large sections as can conveniently be loaded, for conveyance to the site, except in cases where the assembly is directly alongside the site and can be skidded into position on rollers.

The work of assembling points and crossings at layout grounds calls for a good deal of adjustment, and various power-driven tools are extensively used for this. The old material from point-and-crossing renewals not required for further use in the district is sent to one of the Regional reclamation depots, where it is stripped, classified, and, in certain cases, reclaimed for other use. Any of this material which is considered to have no further serviceable life is disposed of as surplus, as in the case of renewals of plain line.

The length ganger has many responsibilities besides track maintenance, and efforts have been made in recent years to provide him with aids which will make his other work easier. Large areas of grass on the lineside have to be cut each year, and a two-wheel petrol-driven cutter has been developed for this work. Attachments can be fitted to it for weed spraying and hedge trimming, and it is proving of considerable value.

The cesses have to be kept clean and clear of weeds, and a petrol-driven motor hoe is available for this purpose. It is also used to make fire-breaks alongside hedges and fences; to break up hard ground and paths; and to reduce hand-weeding. Where weeds have to be cleared from areas beyond the operating limits of a weed-killing train, a mobile weed-sprayer can be used. This consists of a tank and power-driven spraying unit mounted on rubber-tyred wheels. A special appliance also is provided for pulling out and driving in posts for lineside fences.

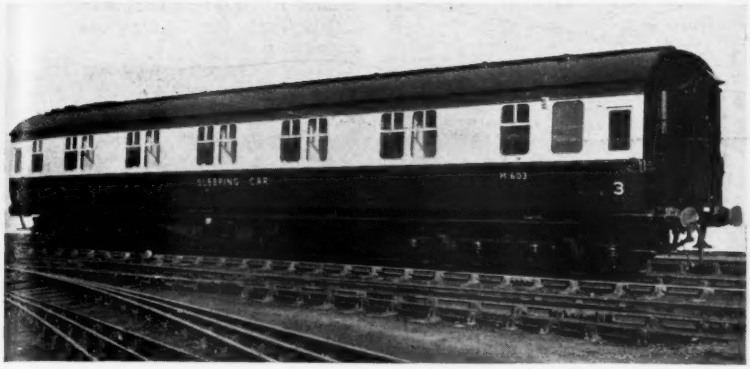
A typical selection of mechanical equipment used by length gangs on the Western Region is shown in the illustration below. Power is supplied by the Mawdsley's Limited 3-kW. generator and alternator. The tools in the front of the illustration (left to right) are: a British Equipment Co. Ltd. Tarplaner; a drill, and a Ripsnorter saw, by Black & Decker Limited; a Kango electric hammer by Kango Electric Hammers Limited; a Black & Decker Limited electric nut-runner.

(*Concluded*)

Selection of mechanical equipment used by Western Region length gangs

New Sleeping Cars for British Railways

Third class vehicles with twin-berths and washing facilities to each compartment



Third class twin-berth sleeping car for London Midland, Eastern, and North Eastern Regions

BRITISH RAILWAYS are building 61 new sleeping cars, fifty for the London Midland Region and 11 for the Eastern and North Eastern Regions. The 50 cars for the London Midland Region comprise 25 first class cars, to be built at Wolverton and 25 third class, to be built at Derby. The eleven for the Eastern and North Eastern Regions are third class.

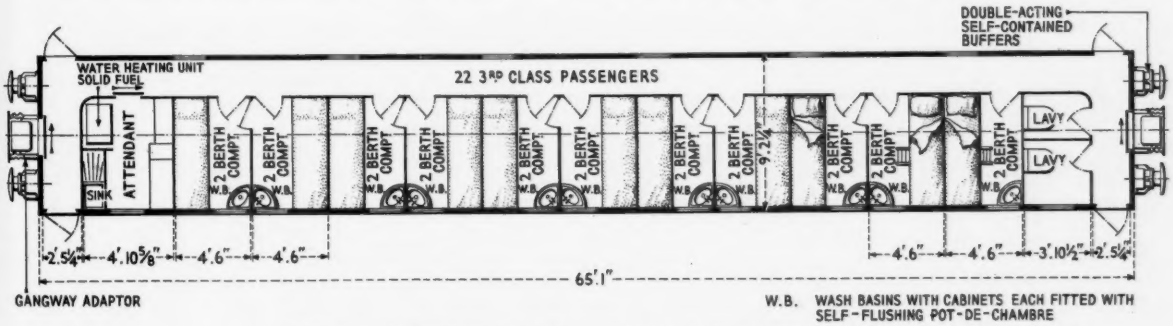
Regional designs will be followed at the outset, but it is expected that from 1953 onwards the designs will be modified, where necessary, to conform to British Railways standards of construction. The first class cars, 69 ft. long and mounted on six-wheel bogies, for 22 passengers in 11 compartments containing one upper and one lower berth. Twin lavatories at one end of the carriage and an attendant's compartment at the opposite end are provided. The tare weight of the vehicles is 40 tons.

The underframes and four-wheel bogies follow the former L.M.S.R. (London Midland Region) standard design of welded construction built up from rolled steel sections. The buffers are self-contained, double acting, with rubber springs and oval heads of strengthened design; the drawgear fitted is the former L.M.S.R. standard with screw coupling. The gangway adaptors carbon arc process before erection on the body framing. The roof panels are 16 S.W.G. galvanised steel, welded to the steel angle carlines and cant rails. The corrugated steel sheeting for the floor is welded to the flush-finished underframe; this giving increased height in the compartment.

Special attention has been given to eliminating noise. The undersides of the steel floor sheets are asbestos sprayed. Cork slabs fitting in the corrugated steel sheets form the floor, with a covering of felt lino and a rug in each compartment. The partitions are constructed of two layers of $\frac{9}{16}$-in. T. & G. boards with $\frac{1}{8}$-in. asbestos sheet between, and $\frac{3}{16}$-in. plywood on each side of the partitions. The compartment bodyside finishing panels are laid on $\frac{1}{4}$-in. T. & G. boards. The berth compartment walls and ceiling are enamelled cream, matt finish, and the metalwork is O.V.B. finish.

Spring Mattress Beds

The beds consist of a light steel framework with interior sprung mattresses carried on resilient mountings to minimise vibration. Each is provided with a hinged shelf, folding flush with the partition adjoining the bed, and a small tubular fixed rack at the foot of each bed. An additional flush folding shelf is fitted below the mirror on the partition away from the beds. There is a tubular luggage rack across the compartment above the window, and further luggage space is provided at



Principal dimensions and layout of third class sleeping cars

follow previous design except for improvements in detail, but the third class cars are a departure from former practice in that the berths are arranged in pairs, one upper and one lower, in separate compartments. Fully made-up beds, and washing facilities with hot and cold water are provided in each compartment.

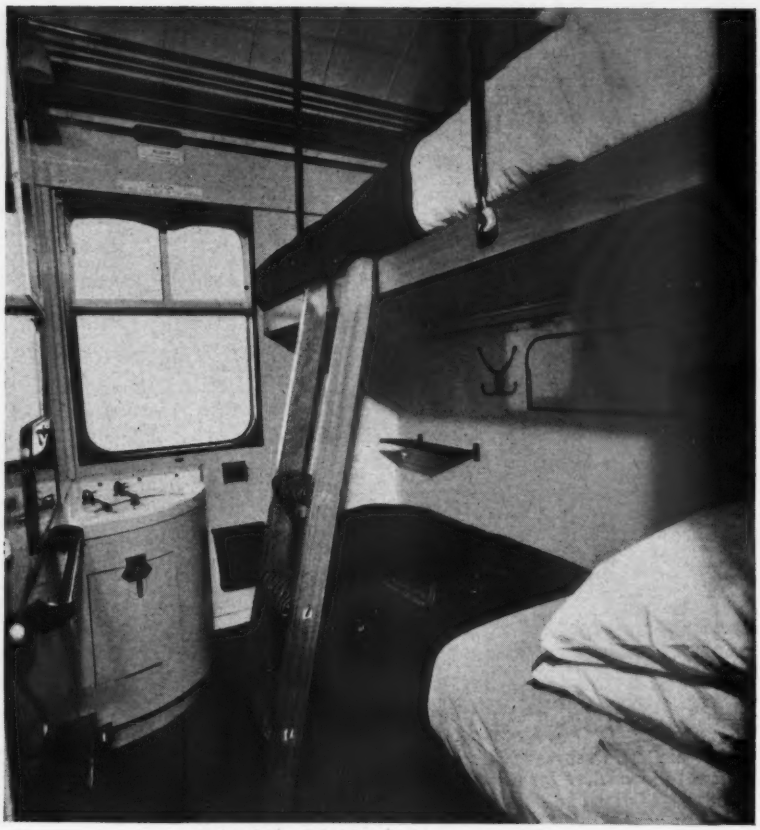
The third class cars are 65 ft. long and 9 ft. 2¼ in. wide over the exterior panels at waist line, thus enabling an ample width of corridor and full-length beds in each compartment to be embodied. Accommodation is provided provided at both ends of the cars enable them to be coupled to the latest design of British Railways coaches.

Body Structure

The body structure is integral with the underframe; the pillars are bolted to pressed steel sockets, welded to the underframe and steel cant rail respectively. The body ends are built up from steel angles welded together and connected to the underframe with specially strengthened corner pillars. The exterior bodyside panels are of No. 16 S.W.G. steel, welded together by the the corridor partition end of the compartment.

There are communicating doors between each pair of compartments with separately operated night latches on each side of the door. The bodyside windows are fitted with sliding ventilator lights and " Zip " fastener blinds. The corridor is finished in Bubinga, with the panelling arranged to provide a flush finish.

Each compartment has a wash basin supplied with hot and cold water. There is a self-flushing *pot-de-chambre* in the cabinet below the basin; the water from



Third class double-berth compartment

the basin forming the flushing medium is directed through a specially-shaped outlet pipe. One mirror is fixed on the partition adjacent to the wash basins, and another on the compartment door.

Approximately 330 gal. of water are carried, 280 gal. in two separate tanks on the underframe which are connected and fitted with filling nozzles for use on either side of the car. The tanks and pipes are well lagged against freezing.

Water is raised by compressed air from the underframe tanks to auxiliary supply tanks situated above the lavatory and attendant's compartment. An electrically-driven air compressor forces compressed air into the top of the water tanks, thus creating a head of water sufficient to refill the roof tanks as water is used. The operation of the system is automatic and is dependent on the air pressure in the main storage tanks.

Auxiliary Supply Tanks

The auxiliary supply tanks in the roof have float valves which regulate the level of water in these tanks. The maintenance of compressed air in the tanks on the underframe is controlled by an automatic switch which brings the compressor into operation when the air pressure has fallen to about 4·5 lb. per sq. in., and cuts out when the pressure reaches 8·5 lb. The service pipes to the berths are carried along the bodyside, the hot water pipes along the cant rail, and the cold water pipes at floor level.

The water heating equipment is a solid fuel-burning unit requiring minimum attention and is similar in design to one which has been in service on the L.M.S.R. and London Midland Region for some years. The unit is insulated and fully enclosed. Phurnacite is used, carried in hods stored in the attendant's compartment. The fire is charged through a door at the front of the unit; the door is fitted with side wings and a safety catch to prevent it opening during a rough shunt. The fuel consumption is approximately 1 lb. per hr. after the unit has reached the stage when hot water to the berths and boiling water at the draw-off tap is being produced.

There are two outlets to the main flue pipe, one connected to the fan to provide a forced draught when lighting the fire, or for use in adverse conditions, the other connected to a natural draught flue outlet with a hand-operated damper. In normal conditions the unit will function satisfactorily on natural draught, and generate sufficient heat to produce adequate hot water for the berths and boiling water for other purposes.

The calorifier tank above the unit has a capacity of approximately 30 gal. and is heated by the circulating boiler at the side of the fire pot. It supplies hot water to the attendant's compartment sink and berth wash basins. Boiling water is produced by a separate boiler above the fire. The boiling water draw-off valve operates at 1½ lb. per sq. in. pressure, thus ensuring that boiling water only is obtained through the draw-off tap.

Attention has been paid to the comfort and convenience of the car attendant. An upholstered hinged seat with armrests and a padded foot-rest and a clothes cupboard have been provided. Ample shelves and cupboards are included for trays and crockery.

Electricity for lighting and auxiliary services is supplied by a single-battery, field-regulated equipment conforming to British Railways standard design: the axle-driven generator has a capacity of 125 amp. at 24/32 volts. The battery consists of twelve cells of lightweight construction, also of B.R. standard design, having a capacity of 440 amp.-hr.

A connection box attached to one solebar provides double-pole fusing on all circuits by re-wirable, non-interchangeable fuse carriers; the cable capacities allow current up to the blowing rate of the protecting fuses to be carried indefinitely without injury.

Illumination

Lighting throughout is by 24-volt 15-watt pearl lamps. A bed reading lamp is provided for each passenger; it is so arranged that, in all switching conditions, a blue night light will prevent the berth being placed in complete darkness. A bell circuit, fed from the train lighting battery, is connected to a push in each berth and functions in conjunction with a luminous indicator mounted over the door and in association with a cancellation push, for use by the car attendant. Luminous indicators show whether the toilets are vacant or engaged.

Ventilation and heating are by Thermotank equipment. Each passenger has within reach of the bed a Punkah louvre enabling hot and cold air to be mixed in any proportion desired; the volume and direction of the air stream are also under his control. Motor-driven fans draw air from the atmosphere through viscous oil filters; separate fan units are used for the hot and cold air systems.

Precautions have been taken to prevent heat transfer between the hot and cold distribution ducts. The duct for air heated by steam drawn from the train pipe is carried above the corridor ceiling, and that for the cold air is on the coach roof. Respective fan units are at opposite ends of the car, and branch ducts, before meeting at the louvres, are separated to the greatest practicable extent. The lighting installation supplies current also to the induced draught fan of the water boiler and the motor-driven air compressor used for raising water from the underframe storage tanks.

The following firms, as sub-contractors, supplied materials and fittings:—

Rubber pads, hose, and strip Dunlopillo	Dunlop Rubber Co. Ltd.
Spring mattresses	Lace Web Spring Co. Ltd.
Sleeping car mountings ...	Rubber Bonders Limited
"Thermo-reg" hot air units and Punkah louvres	Thermotank Limited
Heater cover plates and berth heaters	Westinghouse Brake & Signal Co. Ltd.
Induced draught fans ...	Keith Blackman Limited
Curtain material	Courtaulds Limited
Cream Formica panels ...	Thomas De La Rue & Co. Ltd.
Enamels and undercoating ...	Docker Brothers
Silver Fox stainless-steel sheets	Samuel Fox & Co. Ltd.
Latches, mortice indicator ...	James Gibbons Limited
Blind rollers	Frayssse Nicholls & Co. Ltd.
Glass	Pilkington Bros. Ltd.

A Portable Fabric-Cleaning Unit

Designed for the complete treatment of upholstery and other fabrics

A METHOD of dry cleaning fabrics *in situ* by the application under pressure of a specific cleaning effluent has recently been evolved. This is known as the Swift cleaner and shampoo unit and it is manufactured by G. E. Holloway & Son (Engineers) Ltd.

As the removal of stains from woollen or cotton fabrics requires different treatment according to the type of material, research into the physical and chemical problems involved has been necessary, and at the same time it had to be remembered that stains of different character also require specific treatment. The cleaning of upholstery in railway rolling stock and road passenger vehicles, polishing of metallic fittings, and the cleaning of paint work are among the many uses of the equipment.

Method of Operation

The machine consists of a pressure container complete with a pumping unit, pressure gauge and cock, upholstery shampooing brush, cleaning swab, spirit resisting hose, and flexible lead for supplying power to a fractional horsepower motor; a carrying case is also provided. It is first necessary to remove the pumping unit, after which the pressure container is filled with 1½ gal. of pre-mixed solution, comprising 10 per cent. shampoo and 90 per cent. water; this may be varied depending on the cleaning operation to be performed.

The pump is then replaced, the valve being in the " off " position, and the container hand pumped to a pressure of 15 lb. per sq. in. The container supply connection is opened, and the electric supply switched to the " on " position. The liquid preparation is supplied to the cleaning brush through a flexible hose under pressure.

Swift portable fabric cleaner and shampoo unit, showing the pressure container and cleaning brush

For the removal of stains on cotton, wool, and rayon materials caused by tea, coffee, grease, and so on, different reagents are required, and a chart is supplied giving the necessary information. As little liquid as possible should be used, as the liquid does not go straight on to the fabric, but is dispersed through the brush bristles. It is not therefore necessary for the supply valve to be kept open until the liquid appears. Undue splashing can be prevented by releasing the liquid when working near the centre of the portion to be cleaned and working outwards. The equipment is also suitable for use in hotels, steamers, and industrial premises. The machine is made mainly of light alloys, and is sufficiently robust to withstand rough handling.

DEMOLITION OF OCCUPATION OVERLINE BRIDGE, EASTERN REGION.—The maintenance of the running lines in the vicinity of an overbridge between Tempsford and St. Neots, Eastern Region, has proved difficult because of the presence of clay formation, and this was aggravated by the obstacle formed by the overbridge which prevented further lifting of tracks. This was a three-arch brick structure some 12 ft. wide spanning four running lines. After negotiations it was decided that the most satisfactory method would be to demolish it by explosives. Traffic conditions would only permit full possession of all four lines for 2 hr. on a Sunday morning, and to ensure the minimum amount of clearing up, it was decided to strip the bridge down to the arch rings, and for the arches to be drilled for the charges. Some 300 holes were drilled in the crown and haunches of the arches and the bridge was blown by electrical contact on September 23. The down slow line was restored to traffic at 8.50 a.m. and the up slow line at 9.50 a.m. Possession of the up and down fast lines was retained for the loading up and removal of the debris and were opened at 5 p.m. No damage was done to the track which had previously been covered with a layer of sleepers. The demolition was carried out by the Demolition & Construction Co. Ltd.

UNITED KINGDOM AIR-LINE TRAFFIC.—The volume of traffic carried by United Kingdom air lines last August was the highest ever recorded for the third successive month. Nearly 200,000 passengers were transported and almost 114 million passenger-miles flown.

DORMAN MINIATURE CIRCUIT BREAKER.—As announced in our issue of November 16, a series of demonstrations was given on November 26 and 27, at St. Ermin's Hotel, Westminster, S.W.1, of the Dorman Miniature circuit breaker, manufactured by Dorman & Smith Limited. This unit is designed to give protection to all types of electrical circuits and equipment up to a maximum current rating of 50 amp. at voltages up to 500 V. a.c. or 250 V. d.c. Applications range from lighting and heating circuits to electrically-driven machinery and they cover domestic as well as industrial loads.

PUBLIC TRANSPORT ASSOCIATION INCORPORATED.—The 1952 conference of the Public Transport Association Incorporated will be held at Torquay on April 29 and 30 and May 1 and not as previously announced.

FUEL ECONOMY AT DUNLOP WORKS.—In the near future the Dunlop Rubber Co. Ltd. factory at Speke is proposing to set up a committee to tackle the coal and electricity scarcity problem. The committee will be representative of the whole of the Speke factory. The company has already put into operation its own generators, which will help carry the load during peak periods, and some equipment is also being transferred from day to night shift.

Rectification of Sharp Flanges

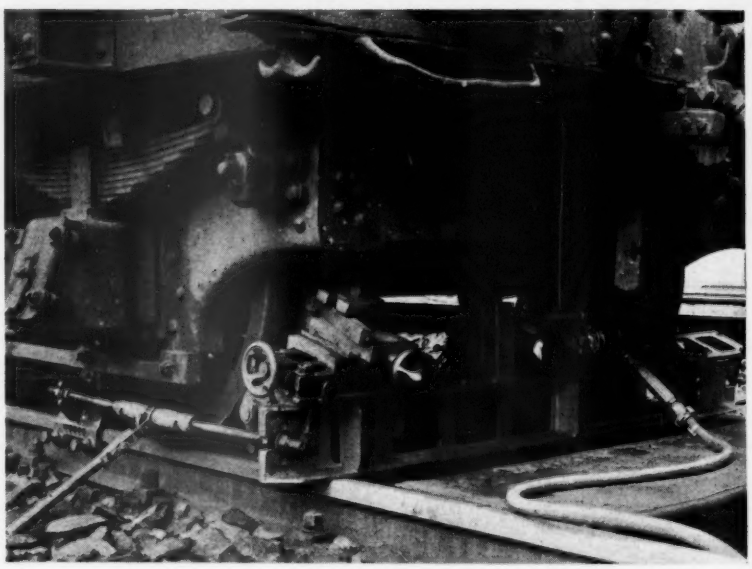
Device for restoring flange profile without taking wagon out of train

Apparatus for restoring flange profile, loaded on rubber-tyre trolley before being lowered into position against wagon wheels

THE number of wagons developing sharp flanges in the Montigny-les-Metz District of the Carriage & Wagon Department in the Eastern Region, French National Railways, has always been considerable; as many as 60 wagons a day had to be taken out of service for this reason at periods in 1949. The causes of this abnormal degree of flange wear have been studied, and measures taken to eliminate the greater part of them; other causes continue, as they are the result of operating conditions. The trouble arises mainly with high-capacity coal and coke wagons working in complete trainloads between the Ruhr and the Lorraine steelworks and in mineral wagons between the Briey basin and steelworks in the Saar. These rakes run over routes with many curves; in addition, some works sidings are badly maintained, with curves of very short radius.

Running Shed Experience

For some time a method has been sought of restoring the flange profile to standard section, or at least of eliminating, even temporarily, the necessity of transhipping the load or of replacing the axle. On the basis of apparatus devised by the staff of a running shed to maintain lateral distance between the tyres of the coupled wheels of 2-8-2 type locomotives without having to drop the wheels, Montigny-les-Metz District staff has evolved a device for rectifying sharp flanges in wagons even when the wagons are made up in a train.



Mobile cradle in position, showing pneumatic drill, toolholder, jack, adjusting screw, and securing bracket for supporting roller

The device consists of: (*a*) a mobile cradle with toolholder and two supporting rollers driven, with the aid of a reducer, by a reversible automatic drill; and (*b*) of two mobile supporting rollers mounted on roller cradles connected with the mobile cradle by adjusting screws. A jack enables the supporting roller to be adjusted to the requisite distance from the mobile cradle, and the wagon wheel to be lifted; the latter then rests on the supporting and driving rollers, and securing brackets allow the supporting rollers to be fixed in position.

The device is carried on a two-wheel trolley. The total weight is about 100 lb. Two 20-ton jacks are provided to support the axle in the case of a loaded wagon. Compressed air for the pneumatic drill is provided from a compressor at a station or from a stationary train.

Rectification of flanges in a rake of empties can be completed in 40 min., during routine examination. The resultant profile of the flange conforms with the requirements of R.I.V. (the international convention regulating freight vehicles). The device is in service at Apach, an important freight traffic transfer point between the French National and Saar Railways.

CLIMBING UNDER TRAIN AT PUBLIC CROSSING.—Judgment was given for the Railway Executive recently in a claim by a boy who, it was said, had been injured as the result of using a public level crossing. For the boy, it was stated that he and two others found a stationary goods train blocking the crossing. After some minutes, he began to cross under the train, when without warning it began to move. The buffers opened and closed, imprisoning his left hand. He was carried, said counsel, for nearly a mile while his companions tried to attract the driver's attention. When the train began to climb an incline the buffers parted and the boy's hand was released. He could not jump clear and was injured. The Railway Executive had agreed that the crossing was a public footpath. The defence was a denial of negligence. The Judge expressed doubt whether the boy had been playing elsewhere than at the crossing, which was three-quarters of a mile from where he was injured.

RAILWAY NEWS SECTION

PERSONAL

ARGENTINE RAILWAYS APPOINTMENTS

The following appointments have been made on the Argentine Railways:—

D.F. Sarmiento Railway

Mr. Pablo C. Testore to be Chief Accountant.

Mr. César Tagliani, to be Chief of the Mechanical Department.

General Urquiza Railway

Mr. Fernando A. Cerrajeria, to be General Manager.

Mr. Francisco Parra, to be Chief of the Traffic Department.

General Roca Railway

Mr. Andrés Chiusano, to be Chief Accountant.

Mr. D. R. Herschell

Appointed Chief Accountant, South African Railways

Mr. D. R. Herschell, Understudy to Chief Accountant, South African Railways, who, as recorded in our November 16 issue, has been appointed Chief Accountant, was born in Johannesburg. He was educated at the Jeppe High School for boys and studied extra murally at the Transvaal University College, obtaining professional certificates in accountancy, law, economics, and public finance. He joined the railway service in 1917 as a clerk in the expenditure accounting section, Pretoria, and after a period of service with the Road Motor Section, was transferred back to the Accounting Department. He became Local Accountant at Head Office in 1943 and in 1947 was selected to understudy the Chief Accountant. Mr. Herschell is a Fellow of the Royal Economic Society (England), an Associate Member of the Institute of Accountants (S.A.), and a Fellow of the Royal Society of Arts (London).

Mr. J. Henderson, Electrical Engineer, Railway Workshops, Queensland Government Railways, arrived in London from Australia on November 21, on a visit to last approximately nine weeks, during which he will visit railways and manufacturing firms in England and France. He will study problems and practice connected with the maintenance of electric and diesel-electric traction equipment, in which the Queensland Government Railways are interested, both for equipment already being supplied and for that required for the projected electrification of the Brisbane Suburban Railways.

Mr. Roy C. Mathews, who, as recorded in our October 5 issue, has retired as Publicity & Advertising Manager, New Zealand Government Railways, is a native of Adelaide, South Australia. After several years' journalistic experience with Commonwealth newspapers, he went to New Zealand and for a long period was on the staff of *New Zealand Truth*, first as Christchurch literary representative and later as literary representative and South Island Manager of that journal. Subsequently, he joined the advertising staff of the *Lyttelton Times* and the *Christchurch Star*, and was appointed Assistant Advertising Manager soon after those papers were merged with New Zealand Newspapers Limited. In 1933, Mr. Mathews was appointed Manager of the Outdoor Advertising Branch, New Zealand Government Railways, a position he held until 1940, when the Department's publicity and advertising branches were amalgamated under his control. As Publicity & Advertising Manager, he was head of the organisation which controlled all advertising on railway property, and which also undertook departmental publicity, photographic, plan-printing and publicity-production work.

Mr. Roy C. Mathews

Publicity & Advertising Manager, New Zealand Government Railways, 1940-51

Mr. M. W. Shorter, Director & General Sales Manager of Westinghouse Brake & Signal Co. Ltd., has been appointed to the board of W. R. Sykes Interlocking Signal Co. Ltd.

The Western Region has announced the following appointments:—

Mr. E. C. Cookson, Assistant Engineer, Permanent Way, as Assistant Civil Engineer.

Mr. F. E. Phasey, Assistant (Passenger & Parcels), Commercial Superintendent's Office, as Assistant to Commercial Superintendent (Passenger & Parcels).

British Railways, Eastern Region, has announced the appointment of Mr. L. C. Barron, Head of Wages Staff Section, Regional Staff Officer's Department, Western Region, Paddington, as Staff Assistant to Motive Power Superintendent, Eastern Region, Liverpool Street.

We regret to record the death on November 21 of Mr. Francis Fraser, who was Secretary of the British Thomson-Houston Co. Ltd. for 40 years, and had been a Director of the company for 27 years, when he retired at the end of 1941.

Mr. H. Maddock, Assistant Publicity & Advertising Manager, New Zealand Government Railways, who, as recorded in our October 5 issue, has been appointed Publicity & Advertising Manager, joined the Railways Department as a cadet and entered the former Outdoor Advertising Branch in 1917. From 1932 he was First Assistant to the Manager, and following the merging of the two branches he was made Assistant Publicity & Advertising Manager.

Mr. H. Maddock

Appointed Publicity & Advertising Manager, New Zealand Government Railways

Monsieur Louis Armand, President of the International Union of Railways and Director-General of the French National Railways, has written to Sir Eustace Missenden, formerly Chairman of the Railway Executive, informing him of the decision of the General Assembly of the International Union of Railways to elect him as Honorary Vice-Chairman of the Board of Management. The Assembly had wholeheartedly approved the proposal which Monsieur Armand had made in the name of the Board. In this way it wished to show its recognition of the remarkable services Sir Eustace Missenden had rendered in the restoration of the International Union of Railways' activities after the war and for the new projects carried out in recent years. Reference to the election of Sir Eustace Missenden as Honorary Vice-Chairman of the Board of Management of the International Union of Railways was made in our November 16 issue.

Mr W. G. Thorpe

Appointed District Operating Superintendent, Hull, North Eastern Region

Mr. S. R. Ryder

Appointed District Estate Surveyor, Newcastle, North Eastern Region

Mr. Herbert Greig

Appointed General Assistant to Commercial Superintendent, Scottish Region

Mr. W. G. Thorpe, District Operating Superintendent, Leeds Central, North Eastern Region, who, as recorded in our November 16 issue, has been appointed District Operating Superintendent, Hull, began his railway career in 1927 in the Divisional General Manager's Office, L.N.E.R. (N.E. Area) at York. After subsequent experience at a number of East Riding stations, he obtained a traffic apprenticeship in 1934 whilst in the District Goods Manager's Office, Leeds, and became Assistant Stationmaster at Hertford in 1937 and Assistant Yardmaster, Whitemoor, in 1938. He was appointed Assistant to the District Superintendent, Cambridge, in 1940, became Chief Controller, Cambridge, in that office in 1941, and Assistant to the District Superintendent, Darlington, in 1942. Mr. Thorpe became Chief Controller (Eastern Section) to the Superintendent, Liverpool Street, in 1943, and after acting as Assistant District Superintendent, Lincoln, for a short time, he was appointed Chief Controller (Western Section), Liverpool Street, at the end of 1945. In 1947 he was appointed Assistant District Superintendent, Leeds, and returned to London as Trains Assistant to the Operating Superintendent (Western Section), Liverpool Street, in September, 1948. He was appointed District Operating Superintendent, Leeds Central, in 1950.

We regret to record the death on October 27 of Mr. Sidney J. Harris, who retired as Head of the Goods Canvassing & Development Section, Commercial Superintendent's Department, Eastern Region, Liverpool Street Station, in July, 1950. Among other posts held by Mr. Harris, in his railway career of over 50 years, were those of Chief Works Clerk (G.E.R.) and Personal Clerk to the Goods Manager, Southern Area, L.N.E.R. He had been a member of many important Railway Clearing House Committees, including the Goods (Ministry of Food) Liaison Committee, of which he was Chairman for a long period. Representatives of the Commercial Department of the Eastern, London Midland, Southern, and Western Regions were present at the funeral at Enfield Crematorium on November 1.

Mr. S. R. Ryder, District Estate Agent, Hull, North Eastern Region, who, as recorded in our November 2 issue, has been appointed District Estate Surveyor, Newcastle, was educated at Archbishop Holgate's Grammar School, York. He joined the staff of the Estate Surveyor, North Eastern Railway, York, in 1920, and after gaining experience in various sections, was posted as an Assistant Surveyor to the District Surveyor, York, in 1941. In 1943 he acted as Secretary to the Railway Estate Agent's Conference, and later that year was transferred to Newcastle as an Assistant Surveyor with the District Estate Agent. At the beginning of 1948 Mr. Ryder became Assistant to the District Estate Agent, Hull, and in May, 1949, he was appointed District Estate Agent, Hull. He is a Fellow of the Valuers Institution and an Associate of the Royal Sanitary Institute.

We regret to record the death on November 17 of Mr. E. Percy Jones, Chairman of William Jones Limited. He was the second son of Mr. William Jones, the founder of the company.

London Midland Region Appointments

The London Midland Region has announced the following appointments:—

Mr. R. W. Bailey, Executive Officer (Technical & Maintenance Staff), Railway Executive, to be Assistant Regional Staff Officer, London Midland Region.

Mr. J. C. Rogers, Assistant District Operating Superintendent, London (Western), to be District Operating Superintendent, Liverpool (Cheshire Lines).

Mr. F. Fawcett, Assistant District Engineer, Walsall, to be District Engineer, Derby (South).

The following appointments, to come into force on January 1, 1952, have been approved by the boards of A.C.V. Sales Limited and its parent company, Associated Commercial Vehicles Limited:—

Mr. A. S. C. Chattey to be Personal Assistant to the Chairman, A.C.V. Sales Limited, and to retain also his present office as Director in charge of Home Sales.

Mr. C. A. Compton, at present Director & Commercial Manager, to be Assistant Managing Director.

Mr. Herbert Greig, Commercial Superintendent's Office, Scottish Region, who, as recorded in our October 26 issue, has been appointed General Assistant to Commercial Superintendent, joined the Caledonian Railway as a clerk in the Goods Department at Airdrie, Lanarkshire, in 1908. Following service at a number of stations in the Glasgow district, he was appointed to the Outdoor Goods Manager's Office, Glasgow, in 1913, and after experience as a relief clerk was promoted in 1922 to the Outdoor Working Section of the Goods Manager's Office. In 1924 he became Clerk in Charge, Canvassing & Development Section, Goods Manager's Office, L.M.S.R., Glasgow. In 1926, following a period of special duty dealing with station terminal working, Mr. Greig was appointed to the Cartage & Station Working Section of the Goods Manager's Office. He became Goods Agent, Perth, in 1929, and in the following year was attached to the Chief Goods Manager's Office, London, in connection with clerical output investigations. In 1932 he returned to Glasgow to take charge of the Canvassing, Development, Cartage Rates & Services, and Road Vehicle Licensing (Goods) Section of the Commercial Manager's Office and in 1935 was appointed Agent for Accounts, Glasgow. In 1948 Mr. Greig was attached to the Commercial Superintendent's Office, Scottish Region, Glasgow, for special duties.

We regret to record the death on November 21 of Mr. Geoffrey W. Morkill, General Manager of the Central Railway of Peru.

Mr. I. R. Frazer, Assistant Civil Engineer, Scottish Region, has been appointed Civil Engineer, as from January 1, 1952, in succession to Mr. W. Y. Sandeman, who is retiring.

The Road Haulage Executive has announced that Mr. C. W. Bramford, formerly District Traffic Superintendent for the Leicester/Northants District of the Midland Division, has been promoted to the post of District Manager for the Leicester/Northants District, in succession to Mr. W. Latham.

British Transport Commission Statistics (Period No. 10)

Summary of the principal statistics for the four-week period ending October 7

STAFF

—	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks Harbours, Wharves	Railway Clearing House	Commercial Advertisement	Legal	Films	Total
Number ...	270	599,847	98,965	80,671	60,009	17,560	6,165	4,898	19,983	642	194	300	38	889,542
Inc. or dec.	—	−1,275	+107	+162	−1,061	−902	−395	−12	−70	−3	−5	—	—	−3,454

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

—	Four weeks (Period No. 10)		Aggregate for 40 weeks	
	1951	1950	1951	1950
	£000	£000	£000	£000
British Railways—				
Passengers	8,452	8,010	85,739	85,578
Parcels, etc., by passenger train	2,652	2,551	25,296	23,234
Merchandise	7,974	7,114	73,825	65,071
Minerals	2,905	2,553	27,266	24,372
Coal & coke	7,460	6,621	68,839	58,247
Livestock	201	259	985	1,185
	29,644	27,108	281,950	257,687
British Railways— C. & D. and other road services	877	799	8,075	7,271
Ships and Vessels	1,109	963	9,854	8,953
London Transport—				
Railways	1,260	1,149	12,353	10,988
Buses & coaches	2,731	2,292	25,884	23,735
Trams & trolleybuses	754	805	7,493	8,128
	4,745	4,246	45,730	42,851
British Road Services— Freight charges, etc.	6,457	5,356	58,417	46,706
Road Passenger Transport	3,674	3,159	34,074	30,184
Docks, Harbours & Wharves ...	1,242	953	10,555	9,056
Inland Waterways	140	129	1,364	1,213
Hotels & Catering	1,319	1,203	12,505	11,232

LONDON TRANSPORT

—	Passenger journeys	Inc. or dec. per cent. over 1950	Car miles	Inc. or dec. per cent. over 1950
	000		000	
Railways...	48,580	− 3·1	17,856	+ 0·2
Buses & coaches	231,894	+16·2	26,387	+12·0
Trams & trolleybuses	74,205	−13·2	7,446	−10·6
Total	354,679	+ 5·8	51,689	+ 4·0

INLAND WATERWAYS

Tonnage of traffic and ton miles

—	Tonnage	Inc. or dec. per cent. over 1950	Ton miles	Inc. or dec. per cent. over 1950
	000		000	
Coal, coke, patent fuel & peat	472	+ 6·1	7,021	+ 8·4
Liquids in bulk	151	+ 6·5	3,793	− 1·8
General merchandise ...	381	+22·4	5,623	+ 8·9
Total	1,004	+11·8	16,437	+ 6·0

BRITISH RAILWAYS

Rolling Stock Position

—	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1950
Locomotives	19,287	3,471	15,425	15,678
Coaching vehicles	57,690	4,997	52,693	52,728
Freight wagons...	1,109,961	86,020	1,023,941	1,004,751

BRITISH RAILWAYS

Passenger Journeys (Month of August, 1950)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1950
7,643,000	14,609,000	30,706,000	4,991,000	16,843,000	20,696,000	95,488,000	+1·7

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 10)

—	Minerals	Merchandise	Coal & Coke	Livestock	Total	Inc. or dec. per cent. over 1950
	000	000	000	000	000	
Tons originating ...	4,751	4,163	13,447	129	22, 490	+2·2
Ton-miles	407,843	558,833*	867,403	—	1,834,079	+4·4

* Includes livestock

BRITISH RAILWAYS (Period No. 10)

—	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train-miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1951	14,344,000	3,782,000	11,197,000	8·5	618	1,025,000	60·7
1950	15,266,000	3,797,000	11,123,000	8·5	593	1,052,000	60·9

Passenger Charges Scheme, 1951

Opposition on behalf of passengers on the L.T.S. line: suggestion that railway freight should carry the burden

When the inquiry by the Transport Tribunal into the application by the British Transport Commission to increase rail passenger fares was resumed on Wednesday in last week, Mr. G. R. Rougier, representing the Southend Corporation and the local travellers' association, expressed the view that there should be no increase in fares on the London Tilbury & Southend line until electrification was completed. Alternatively, should the Tribunal not be prepared to grant this, there might be a lower rate for the two classes of travellers most badly hit, namely, season ticket holders and early morning ticket holders. Moreover, this line should be classified as a sub-group, for it was a self-contained area, and formed a special problem.

The L.T.S. Line

Mr. Rougier said that his criticism of the scheme was, first, that it was neither just nor right, and, second, that as it stood it imposed too great a hardship on the group of travellers on that line. The problem had been over-simplified by the B.T.C. That there should be a uniform rate per mile was quite wrong, as there was no logical basis for it, and what the railways could charge depended on what they sold. He suggested that there was no reason why there should not be different rates charged in different circumstances and under different sets of conditions.

In a statement submitted by the Southend Corporation it was alleged that the scheme was unreasonable in that it made no due allowance for the interest of districts at a distance from London which had been partly built up on favourable traffic facilities and where people had settled down in reliance on such facilities. It was requested among other things that cheap-day tickets from Southend to London should be restored and that cheap-day returns for the area should be continued at the present rates.

Mr. A. Capewell, K.C., speaking on November 22 for the Middlesex County Council and a number of other county councils, submitted that the London target should be reduced by £9·3 million. That could be effected by deleting £4 million planned for reserve and by raising some £5 million less in fares. There should be no question of a reserve being set up until there was a surplus on which it could be based. This scheme attempted to raise more than was necessary and more than was justifiable at the present time and it was demanding an unfair contribution to the finances of the B.T.C. as a whole from the London area.

Objectors to the proposed scheme found some difficulty in dealing satisfactorily with the matter because they were in the dark as to the total which it was intended should be brought into the coffers of the B.T.C. by means of increased freight charges. Had it been possible to discuss the picture as a whole they would have found the method of approach easier. The policy which the B.T.C. now pursued was opposed to the normal commercial practice of going out to widen the market and was turning away large numbers of potential passengers to produce comparatively small gains. The greater part of any lost traffic would never be reclaimed at a later date.

The B.T.C. was faced with an accumulated deficit at the end of this year of about £50 million and if anything was to be done to improve the position it must come from freight. They had in London a guide as to what was likely to happen if these new charges were imposed. From October of last year there was a considerable drop in passenger receipts due to the impact of the then increased fares. Also arising from increased fares would be a demand for increased wages.

Mr. R. Moelwyn Hughes, K.C., for the L.C.C., on November 23, said that he supported the criticism by Mr. Capewell of the proposals for general and special reserves, adding that he did not see how a reserve could be built up while there was still "the bottomless pit" of a deficit. The approach to London was an attempt by the B.T.C. to get all it could, which was not a proper approach, although certainly London should pay something in proportion to the rest of the country. There was no point in the B.T.C. asking for an increase in fares which led to no increase in the number of passengers carried.

There had been various references at this inquiry to sub-standard fares. So far as journeys in London were concerned there was no standard for the reason that London had been built up on what might be called tapered rates. The fares structure was built up to tempt people to live further out.

When the Tribunal resumed its hearing on November 27, Mr. D. Turner Samuels, speaking for the London Trades Council and various unions, submitted that no increase in fares could be met by the working population as a whole without having to give up some other expenditure. Travellers were faced with the alternative of obtaining employment nearer home, which was difficult and might not be in the national interest, or they could move their homes nearer their work, which was seldom possible at the present time.

In 1949, of the people who travelled other than by public transport, 17 per cent. went by foot and 14 per cent. by cycle, and at that time 83 per cent. of the cyclists said they used cycles on the grounds of economy. In 1949 wages stood at an index figure of 111, and the cost of living at 109, whereas today wages were at 120, and the cost of living at 128. The scheme if approved must mean more cycling to work.

Optional Travel

Dealing with optional travel, Mr. Samuels said that in their view the services operated by the B.T.C. should be at such a cost that the average traveller—and average worker—could go outside London at the weekend and go on holidays and that the housewife could go to the cheapest local market. In the travel survey they saw that 68 per cent. of full-time housewives made regular shopping journeys. Already optional travel was being hit by the tightness of money.

Mr. Samuels, commenting on the proposals on shift workers' concessions, said that the national importance of shift workers was increasing, and nothing ought to be done which would be detrimental to them. The increases proposed for early morning workmen's tickets would bring in 17·6 per cent. of the increased yield although only 11·6 per cent. of the passengers used them. They were part of the standard of life of the working man and any increase must mean an equivalent reduction in his standard of life.

Mr. Leon Maclaren, opening his submissions against the proposed increases on behalf of the London County Council and others, said that, viewing the problem from the point of view of yield, the B.T.C. was faced with the serious task of arresting a decline which was eating up the increases in charges very soon after they were made. The arrest of that decline was the first point to be dealt with if the revenue from the service was to be sustained or increased. It was up to the B.T.C. to improve its services, which if carried out would be remunerative, and this was most clearly shown on the Shenfield line. As a result of electrification the increased revenue from fares in 1950 was 48·8 per cent. The extension of the Central London line east and west and produced general increases.

Capital Investments Programme

Those whom he represented took the view that it would be of assistance to all if the Tribunal found it possible to express an opinion on the effect on the B.T.C. revenue of the capital investment programme. Improvements in the services would greatly increase the receipts. Apart from carrying out improvements the B.T.C. should try to find the fare which was commercially and socially the right one. The commercial test was: Which fare would yield the most revenue? The social test was: Which fare would enable the greatest number of people to move on their social and business occasions? The charges were at present at such a level that the public were travelling less and less. He suggested that fares should be higher during peak periods and low at other times so as to attract further traffic.

EXPRESS EDINBURGH-GLASGOW BUS SERVICE.—As an addition to its present service operating between Glasgow and Edinburgh every 15 minutes Scottish Omnibuses Limited commenced a new express two-hourly service as from November 24.

HIGHER RAILWAY CHARGES IN NEW ZEALAND.—The Minister of Railways has announced that freight rates on the New Zealand Government Railways will be raised 5-20 per cent., and baggage and parcels rates 20 per cent. from December 16. Passenger fares are to be raised by an unspecified amount early in 1952. The reason given for the increase is the "staggering rise" in operating costs.

LEOPOLDINA RAILWAY CO. LTD.—The board of the Leopoldina Railway Co. Ltd. announce in connection with the purchase of the railway by the Brazilian Government that the transfer deed was signed in Rio de Janeiro on November 26. The balance of the purchase price payable by the Brazilian Government for the undertaking and stores, also taking into account advances already made and certain adjustments in respect of stores items in dispute, has now been released in accordance with the provision of the sale agreement of May 26, 1949. A meeting to authorise the company to enter into liquidation will be convened as soon as possible.

Problems of Nationalised Transport

Railways as long-distance freight carriers: passing on increased costs to railway users

We give below the text of some recent letters to the press on the organisation of publicly-owned rail and road transport and on the problem of British Railways finances, which are the subject of comment in an editorial article on page 591.

A correspondent with the pseudonym "Empirical" stated in a letter reproduced in *The Manchester Guardian*, November 21 issue:

"I can imagine few things calculated to embarrass our new Government more than the reports of the press conference recently of the Road Haulage Association. Socialists must chuckle when they read that the association do not propose to repay the compensation which the Labour Government gave them when it nationalised part of the road haulage industry. The argument that the income tax they will pay will take the place of refund of compensation is feeble and just nonsense.

"On all this there are two things I should like to say. First, this argument about non-return of compensation received must be welcomed with glee by these extremists in the Socialist party who would, if they had their way, reduce (or abolish) the compensation paid by way of fixed dividends on stock issued in return for the nationalisation of their property. I write as one who paid three or four times the price I received for the railway stock I had to give up.

Road Haulage and the Railways

"Secondly, I consider it would be against the national interest to sever the ownership of long-distance road haulage from the ownership of the railways. Before the war the free competition of road hauliers against the railways was deplored and resented by the railway chiefs of those days. They argued that the hauliers were free to pick and choose their traffic and leave the rest to the railways; the hauliers were not so tied by Government regulation in the matter of public safety, and they had nothing like the same 'overheads.'

"In a sensible organisation of the country's transport it would be inept to divorce long-distance road transport from the railways; they are complementary and the nation needs them both—and they need one another, but as co-operators not antagonists. I cannot believe that the Road Haulage Association are moved by altruistic motives—free enterprise, the nation's good, and so on. Is it not simply that they want to get the profits of that one branch of nationalised transport that pays?"

Importance of Efficient Railway System

In a letter in the November 22 issue of *The Times*, Miss Irene Ward, Conservative M.P. for Tynemouth, wrote:

"There is no more difficult problem to be solved than the future of British Railways. In the number of major issues on which Government decisions have to be made, public attention seems less concerned with the question than its importance demands. The financial crisis, shortages of coal and food, the difficulties of denationalising iron and steel, and the urgent need for housing occupy pride of place. The solution of these problems, however stubborn, appears in the main to depend on human endeavour and sound organisation.

"The issues facing British Railways are in a different category. We must for practical as well as strategic reasons maintain an efficient railway system. When normal conditions of life return, it is obvious that our roads cannot safely carry an unlimited increased volume of traffic. The pre-war official view that a properly integrated rail and road service was the solution, though still possibly a basis for long-term planning, is no answer to the immediate issue. Railways must provide freight and passenger services which are not an exceptional liability to our commercial life or to one section of the travelling public. Further, railway employees of all grades are entitled to a standard of living equal to that provided by other industries. Standards should not be set by the strength of political pressures which can be brought to bear. But this is a different though most important question.

Obligations Under Transport Act

"The Transport Act of 1947 places an obligation on the Railway Executive to maintain solvency through the medium of handing on financial deficiencies to the consumers. The present applications under the Act before the appropriate tribunal have been presented with a statement by the Chairman of the Railway Executive to the effect that no more economies can be effected. This view is not accepted by all railway servants, but there is the additional feature that for reasons of safety there is real danger in economising in capital expenditure. Our present dilemma, therefore, is that while endeavouring to avoid national bankruptcy, to increase substantially our exports in competitive world markets, and to deal with national unrest due to an ever-increasing cost of living, our legal obligations under the Transport Act increase rather than decrease the immediate problems we face. Bluntly, the losses, in the main unavoidable, on an essential national service are borne by consumers, to whom we must look for our survival.

Railway Subsidy

"It is impossible, even if I were competent to do so, to argue within the space of a letter for or against subsidies for the railways, but in our present emergency is it right, or indeed expedient, to relieve the Exchequer of charges which must vitally affect our trade balance-sheet? Would it not be wiser to face inescapable national expenditure at Budget level rather than at trading level? Whatever the Government opinion may be, this does appear to be the most vicious of all circles which has to be broken. If effective action can be taken it would be an important step towards recovery. I write to urge that as a preliminary to a full examination of the issues involving the Government should take steps, by temporary amending legislation if necessary, to prevent the latest disclosed deficiencies on the British Railways account being imposed on the consumer, the result of which could be nothing but detrimental to our national effort."

Further Economies on Railways

Mr. John Elliot, Chairman of the Railway Executive, commented in a letter published in *The Times* of November 23:

"Miss Irene Ward's letter on the finances of British Railways deals mainly with the political aspect, on which I offer no comment. I should be obliged, however, if you would allow me to point out that Miss Ward is in error in saying that I have stated that 'no more economies can be effected.' What I said, in relation to the latest wage award accepted by the Executive and the unions, was: 'There is no possibility of this sum (£14,200,000) being obtained by further economies or other means,' which is quite different."

Staff & Labour Matters

London Transport Pay Increase

The N.U.R., A.S.L.E.F., and T.S.S.A. last week agreed to accept the offer of the London Transport Executive to increase the rates of pay of salaried and conciliation railway staff by approximately 8 per cent. The increase, which affects approximately 20,000 staff, will be back-dated to September 3, and brings London Transport railwaymen into line with British Railways staff.

N.U.R. and Staff Shortage

At a special general meeting of the N.U.R. in London on November 1 it was resolved to instruct the N.U.R. National Executive Committee to obtain the following changes in the arrangements agreed with the Railway Executive to economise in staff:—

(*a*) Voluntary working of rest days to replace the 48-hr. week proposed; (*b*) removal of over-age staff from link progression; and (*c*) payment of higher-grade rate currently to staff allocated to retention vacancies irrespective of date entered service.

Withdrawal from Agreement

The resolution was followed by an amendment to the effect:—"That we instruct our General Secretary to convey immediately to the Railway Executive that we immediately withdraw from the present arrangements agreed to in respect of our conditions of service on railway operational difficulties and shortage of staff."

On a recorded vote the amendment was carried by 49 votes to 30, and it is understood the N.U.R. has advised the Railway Executive of the decision to discontinue the agreed arrangements which were designed to assist in alleviating difficulties due to staff shortages. The measures previously agreed by the N.U.R. were detailed in our July 20 issue. The A.S.L.E.F. was not a party to these arrangements.

Engineer Wages

At the meeting in York on November 21 the C.S.E.U. general council decided to accept the offer made by the Federation of Engineering and Allied Employers to increase the pay rates by 11s. a week. The council also agreed to accept a further offer of the Employers' Federation to grant an extra week's annual leave with pay. The cost of the settlement is estimated to be in the neighbourhood of £85,000,000 a year.

The original claim was for an increase of £1 a week, but was rejected by the Federation of Engineering & Allied Employers, as was a similar claim by the shipbuilding employers.

Tyer & Co. Ltd. Centenary Dinner

Captain Reginald Terrell's offer to British Railways

The Chairman and Directors of Tyer & Co. Ltd., on October 24, held a dinner at the May Fair Hotel, London, to celebrate the centenary of the founding of the firm. Captain Reginald Terrell, Chairman of Tyer & Co. Ltd., presided, and the principal guest was Mr. John Elliot, Chairman of the Railway Executive.

Captain Terrell, in proposing the toast of the guests, said that his company had been a pioneer among manufacturers of railway products, and he believed that it was the very first firm in the world to engage in the design and supply of railway signalling appliances. The firm had been founded in 1851 by Mr. Edward Tyer, and during the last hundred years it had devoted itself to the invention, design, and manufacture of goods which had as their purpose the safety of the public travelling by railways. The company had always prided itself on the quality of its production. Many of the items of equipment which were now coming into the works for maintenance or repair had been in service for sixty or seventy years.

Recently, Tyer & Co. Ltd. had entered into an arrangement with Integra A.G. of Zurich, Switzerland. It had done this because, after many years of technical and scientific investigation into the matter of discovering the most effective system of automatic train control, it had reached the conclusion that the system perfected by Integra and adopted by a number of the railways in Switzerland was the best. He welcomed Dr. Oehler, President of Integra, and said that shortly the company would be manufacturing in this country what it believed to be the finest system of a.t.c. in the world.

Tyer & Co. Ltd. had made an offer to British Railways to supply a complete installation of this system so that it could be tested under operating conditions in conjunction with any other system.

He extended a special welcome to Mr. John Elliot and to the many other guests who represented various bodies interested in railway operation and safety, not only in this country, but also overseas.

Mr. John Elliot, responding to the toast, congratulated the company on attaining its centenary and said that the period had been one of a hundred years of service to the railways and to the public.

British Railways had accepted the principle of adopting a.t.c. To do so would mean the expenditure of many millions of pounds, and for this reason it would not be possible to go ahead with the project immediately. When the present rearmament programme was over, however, it would be necessary to embark on capital expenditure on the railways on a very large scale. British Railways could not produce revenue without incurring expenditure.

He did not think it was always appreciated how great was the effort being put forward by British Railways at the present time. There was no hitch in the movement of goods on the railways, and this was an achievement in view of the very heavy demands being made on them. An efficient and up-to-date railway service was absolutely essential to the prosperity of an industrialised country such as this. Transport must not be allowed to become a kind of political football. It was not possible to change the hearts and minds of men by an Act of Parliament.

Mr. George Terrell, who has been closely associated with the railway signalling industry for over half a century, also spoke, as did Mr. D. S. Bennett, Managing Director of Tyer & Co. Ltd., who had been responsible for the organisation of the centenary dinner arrangements.

Among those who accepted invitations to be present were:

Messrs. H. F. Adams, C. R. Atkins, F. M. Ball, T. W. Ballard, G. H. Baxter, J. H. Bennett, H. A. R. Binney, C. K. Bird, A. H. Bishop, L. J. Boucher, D. F. Brown, W. Bryson, Sir John Alexander Calder, Messrs. Moodie Campbell, C. Carslake, F. L. Castle, F. H. Champion, Dr. G. Charlesworth, Messrs. W. R. Clemens, B. W. C. Cooke, V. Coomaraswamy, Norman Crump, A. W. Damon.

Sir Harold F. Downie, Messrs. H. H. Dyer, D. Edgar, H. J. Edward, John Elliot, D. G. C. Ensum, E. K. Featherstone, A. L. Fielding, A. Forbes Smith, R. W. Foxlee, J. H. Fraser, D. F. D. Gemmel, Mr. Gillespie-Jones, Mr. K. M. Goodenough, Colonel H. Gresham, Messrs. J. Griffith-Hall, G. Grime, H. J. Guthrie, G. Halliwell, Alan M. Harrison, E. V. Harrison, C. G. Hatherly, C. P. Hopkins.

Messrs. W. H. Kitson, J. C. Kubale, S. Lelliott, J. H. Lienhop, C. F. Minett, D. Minett, A. Moss, Major H. K. McKee, Mr. A. B. MacLeod, Colonel D. McMullen, Messrs. V. K. Krishna Menon, R. Needham, L. Ollerenshaw, Dr. Oehler, Messrs. K. B. Rao, G. Roliason, C. G. Roberts, R. M. Setti, M. W. Shorter, C. I. Stevens, F. J. Sykes, Dr. E. Szekely.

Mr. H. Takach, Sir Basil Tangye, Messrs. J. W. Terry, C. H. Torrance, J. S. Tritton, Clifford Troke, John W. Vaughan, General Sir Daril G. Watson, Messrs. H. R. Webb, C. Webster, G. Weston, A. F. Wigram, Lt.-Colonel G. R. S. Wilson, Messrs. F. M. Woods, A. W. Woodbridge, G. Wynne Davies.

Questions in Parliament

Fog and Ice on Railways

Mr. Norman Dodds (Dartford—Lab.) on November 19 asked the Minister of Transport what progress had been made to avoid a repetition of the delays and hold-ups on railways in the London area by fog and the icing of points.

Mr. J. S. Maclay: I am bringing this question to the attention of the B.T.C.

Parliamentary Notes

Questions on Nationalised Industries

Mr. Harry Crookshank, Leader of the House of Commons, on November 22 stated that the Select Committee on Parliamentary questions on nationalised industries was irrespective of the wider review of the problem which the Government would undertake. This would include the relationship with Ministers and Departments and to the House of Commons, and would take time. Pending that larger review, the immediate problem of questions should be remitted to a Select Committee. In reply to a question by Mr. Herbert Morrison, Deputy Leader of the

Groups at the Tyer & Co. Ltd. centenary dinner: Left (left to right) Captain Reginald Terrell, Messrs. George Terrell, D. F. Brown, John Elliot; Right, Mr. A. Moss, General Sir Daril G. Watson, Mr. C. K. Bird

Opposition, on procedure, Mr. Crookshank said that would be for the Select Committee to decide.

Railway Charges

Miss Irene Ward (Tynemouth—C.) on November 23 asked the Minister of Transport if he would give an assurance that neither freight nor passenger charges would be increased on British Railways without a full investigation into the part railway services should play in the life of the nation.

Mr. J. S. Maclay in a written answer stated: I regret I cannot give such an assurance.

Visit to Harmon Yards, U.S.A. by Commandant General, Royal Marines

General Sir Leslie Chasemore Hollis, Commandant General of the Royal Marines, recently made a visit to United States Marine Corps establishments in the U.S.A., at the invitation of the Commandant of the U.S. Marine Corps, and at the completion of his tour was invited by Lt.-Colonel A. W. Gentleman, Public Relations Officer, U.S. Marine Corps, New York, to visit the Harmon yards of the New York Central System and to inspect the railway shops situated there. On October 12 General Hollis drove the New York-Cleveland "Empire State Express," between Grand Central Station, New York, and Harmon yards; over this 32½-mile section it is electrically hauled. On arrival at Harmon, General Hollis made a tour of the extensive yards and workshops before returning to New York for embarkation on s.s. *Parthia* for Great Britain.

Contracts & Tenders

The National Railways of Mexico have placed a contract with Societe d'Entreprises Industrielles Charentaises, Paris, France, for 50 first class carriages.

The Indian Government has placed the following further contracts under its 1952-53 programme:—

English Electric Co. Ltd., London: Seven general-purpose electric locomotives.

Krauss-Maffei A.G., Munich, Germany: 20 "HSM" class locomotive boilers.

The contract for 60 Class "25" 4-8-4 locomotives which, as recorded in our October 5 issue, has been placed with the North British Locomotive Co. Ltd., by the South African Railways, has recently been revised. Under the new arrangements the North British Locomotive Co. Ltd., will build 100 of these locomotives, many of which will be equipped with condensing tenders supplied by Henschel & Sohn G.m.b.H. Henschel & Sohn G.m.b.H. will supply 30 locomotives with ordinary tenders, and ten with condensing tenders, as well as a number of engines being built by the North British Locomotive Co. Ltd. Bedplates for the locomotives will be supplied from the U.S.A. and both engines and tenders will have cast steel bogies. The tenders will have Commonwealth cast steel waterbottoms.

The following contracts have been placed by British Railways, London Midland Region:—

Henry Hope & Sons Ltd., Birmingham: renewal of roof coverings, patent roof glazing, of Stockport Edgeley carriage shed roof.

McIntyre & Sons Ltd., Liverpool: supply and erection of steelwork for the roof over the excursion platform at Blackpool Central Station.

Demolition & Construction Co. Ltd., London, S.W.1: removal of the existing roof coverings over platforms 9 and 10 at Euston Station.

Mellowes & Co. Ltd., Sheffield: re-roofing of platforms 9 and 10 with patent roof glazing at Euston Station.

Edward Wood & Sons, Derby: reconstruction of decks in the Belfast shed at Heysham Harbour.

E. J. Logan (Putney) Ltd., London, S.W.15: renewal of roof coverings, general building work, over Eldon Street cartroad at Broad Street goods station, London.

Faulkner, Greene & Co. Ltd., London, S.E.1: recovering station roof, patent roof glazing, at Manchester Central Station.

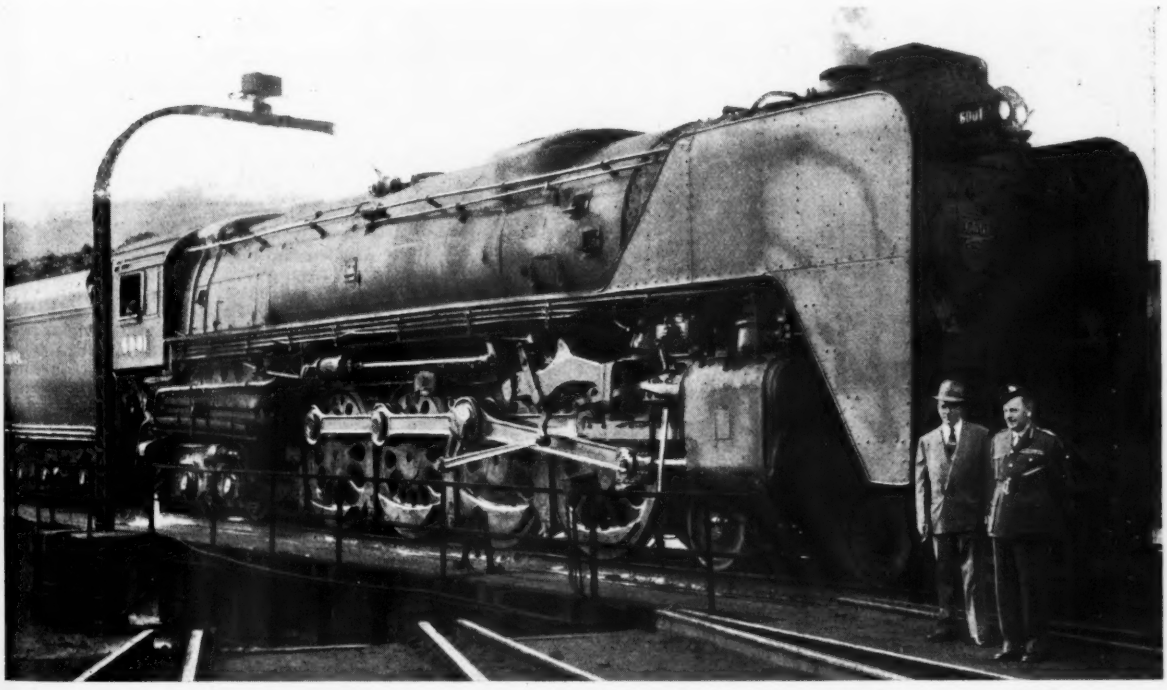
Thomas Collier & Sons Ltd., Leigh: renewal of the roof coverings of the old carriage shed at Holyhead.

Industrial Engineering Limited, London, W.1: renewal of the roof covering, with R.P.M. sheeting of Camden "B" goods shed.

The 185 second class coaches for the Argentine Railways, which are being built by Werkspoor N.V., Amsterdam, are to have seating supplied by Pel Limited, Oldbury, Birmingham, with Dunlop Rubber Co. Ltd. Dunlopillo cushions and squabs throughout.

The Government of New South Wales is inviting tenders for the supply and delivery f.o.b. of various locomotive boilers. Further details are given under Official Notices on page 615.

The Rhodesia Railways are inviting tenders for 23 diesel-electric locomotives for hauling goods and passenger trains in main-line service. Manufacturers wishing to tender may obtain a copy of the preliminary specification, form of tender and general conditions of contract from the



General Sir Leslie Chasemore Hollis, Commandant General of the Royal Marines, and Mr. R. F. Batchman, Assistant Superintendent of Equipment, New York Central System, with a "S1A" class 4-8-4 locomotive, during General Hollis's visit to Harmon yards

Photo: United States [*Marine Corps*

London Agent, Rhodesia Railways, 11, Old Jewry, London, E.C.2. Tenders with all accompanying documents must be lodged, in duplicate, with the London Agent on Wednesday, March 19, 1952.

The Board of Trade Special Register Information Service states that the First Secretary (Commercial) at the British Embassy, Brussels, has notified the Commercial Relations & Exports Department that the Belgian State Railways have issued a call for tenders (No. 2651/27-529) for seven lots of electric line relays as per specification. Tenders should reach the Societe Nationale des Chemins de fer Belges, Direction du Materiel et des Achats, Brussels, before December 12. A copy of the tender documents in French is available for inspection by representatives of United Kingdom manufacturers at the above Commercial Relations & Exports Department. Reference CRE(IB) 76353/51 should be quoted.

A call for tenders from the South African Railways for gearwheels, pinions and armature shafts is reported by the Board of Trade Special Register Information Service. This equipment is required for electric locomotives and motor coaches, and comprises 100 sets of solid gearwheels and pinions; 12 rims for resilient gearwheels and 50 matching pinions; 60 sets of resilient gearwheel rims and pinions; and 200 armature shafts (rough-machined). Drawings may be inspected at the Office of the High Commissioner for the Union of South Africa, Trafalgar Square, London, W.C.2. A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Exports Department, London, S.W.1. Reference CRE(IB) 75553/51 should be quoted.

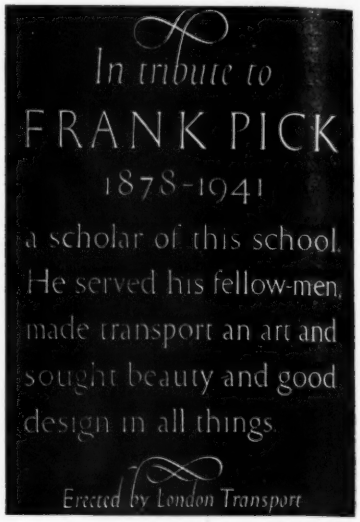
Tenders must reach the Chairman of the Tender Board, P.O. Box 7784, Johannesburg, South Africa, before 9 a.m. on Thursday, January 3, 1952.

According to a further report from the Board of Trade Special Register Information Service, a call for tenders has been issued by the Portuguese Directorate-General of Colonial Development for the supply of 300 km. of permanent way for the Mossamedes Railway. Tenders must reach the Offices of the Directorate in Lisbon, by 3 p.m. on December 28, and for these to be admitted a provisional deposit of Esc.1,000,000.00 (£12,500) must have been made with the Bank of Angola by 3 p.m. on December 27. A copy of the tender documents in Portuguese and drawings is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department. Reference CRE(IB) 75418/51 should be quoted.

Notes and News

Institution of Civil Engineers Christmas Lectures for Boys.—This year the Christmas lectures for boys arranged by the Institution of Civil Engineers will describe the story of oil. The three lectures, which will be held at the Institution, Great George Street, London, S.W.1, will be: "Exploring for Oil," by Dr. G. M. Lees (December 28, at 3 p.m.); "Transporting Oil in Peace and War (Pluto)," by Mr. A. C. Hartley (December 31, at 3 p.m.); and "Working of an Oil Refinery," by Mr. S. W. Adey (January 2, 1952, at 3 p.m.).

Memorial Plaque to Frank Pick.—On November 23, Lord Latham, Chairman of the London Transport Executive, unveiled at St. Peter's School, York, a tablet to the memory of the late Frank Pick, one-time scholar of St. Peter's and Vice-Chairman



of London Transport from 1933 to 1940. The tablet is of Welsh slate, cut by Mr. Reynolds Stone, and bears an inscription, as shown in the accompanying illustration. In a speech, Lord Latham praised Frank Pick's sense of beauty, and its application to business. In the service of passenger transport in London he demonstrated his ideals in practice and founded a tradition in design which not only still inspires London Transport but has had a world-wide influence in many other fields.

Vacancy with a Yorkshire Engineering Firm.—An engineering firm in Yorkshire has a vacancy for a man between 40 and 45 years of age, with commercial experience and engineering background. See Official Notices on page 615.

Accident in Jugoslavia.—Seventeen Jugoslav travellers were killed and 32 injured in an accident near Vinkovci, 90 miles north-west of Belgrade, on November 6. A goods train ran into the back of a passenger train which had been halted by a signal on the main Zagreb-Belgrade line.

Vacancies for Designer Draughtsmen and Draughtsmen.—Applications are invited for posts of designer draughtsmen and draughtsmen, experienced in the electrical and mechanical design of d.c. control equipment, required by a company manufacturing diesel-electric locomotives. See Official Notices on page 615.

Clyde Coast Steamer Services.—Mr. T. F. Cameron, Chief Regional Officer, Scottish Region, recently stated that modifications in British Railways Clyde steamer services involving abolition of calls at certain piers were caused by increases in working costs, including wages and the cost of coal and repairs, so that the services had been working at a heavy loss. Nevertheless, orders had been placed for seven new ships at a cost of £1,000,000. The ques-

Euston Reception for Princess Elizabeth

Among those present at Euston Station, on November 17, to welcome Princess Elizabeth and the Duke of Edinburgh on returning home from their Canadian tour, were (left to right) Mr. John Elliot, Chairman of the Railway Executive; Lord Salisbury; Sir David Maxwell Fyfe; Lord Ismay; and Mr. V. M. Barrington-Ward, Member of the Railway Executive

OFFICIAL NOTICES

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

BRITISH RAILWAYS (Western Region) London Office have vacancies for expert designers in Prestressed Concrete. Good prospects of permanency for conscientious and knowledgeable men. Apply, giving particulars of age, experience, etc., to CIVIL ENGINEER, BRITISH RAILWAYS, WESTERN REGION, Paddington Station.

AN old-established firm of heavy engineers in Yorkshire have a vacancy for a man aged 40/45, with sound commercial experience and engineering background, capable of taking responsibility and giving general assistance. Permanent position and good salary to the right man.—Apply to Managing Director, Box 288, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Methods. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. Price 20*s*. By post 20*s*. 6*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

GOVERNMENT OF NEW SOUTH WALES

DEPARTMENT OF RAILWAYS. Tenders are invited for the Supply and Delivery f.o.b. of the following Locomotive Boilers, to be in accordance with the Department of Railways Specification No. 2226 and suitable for operating at a working pressure of 160 lbs. per sq. inch:—15—C.30 Class for saturated steam. 8—C.30 Class for superheated steam. 8—C.32 Class for superheated steam. 20—Standard Class for superheated steam. Full particulars, copies of Specification No. 2226, drawings and forms of tender can be obtained by bona fide tenderers upon application to the undermentioned address, to which tenders are returnable not later than 12 noon on Wednesday, 16th January, 1952. (Reference: F.6984.)—AGENT-GENERAL FOR NEW SOUTH WALES, Engineers Branch, 56/57, Strand, London, W.C.2.

WE buy used or unserviceable Steel Files at good prices in lots of 2 cwts. or more.—THOS. W. WARD LTD., R.S. Dept., Albion Works, Sheffield.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2*s*. Post free 2*s*. 3*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

COMPANY manufacturing diesel-electric locomotives invites applications for the following staff:—Designer Draughtsmen and Draughtsmen who are experienced in the electrical and mechanical design of D.C. Control Equipment. Good salaries paid to men with exceptional qualifications. Three years agreement and every facility to find suitable living accommodation will be given. Staff Assurance Scheme and good working conditions. Applications from men with industrial control gear experience will also be considered. Offers only to first class men. Please apply giving full details of training, experience, age, etc., to Box 295, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s*. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and woodworking equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21*s* net. By post 21*s*. 9*d*. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

tion had been under close examination at meetings with representatives of the interested authorities. Vessels now cost between £3 to £4 a mile to operate, and British Railways, therefore, were adopting a policy of limiting the piers of call. The service proposed on January 7 would involve withdrawal of the service from Strone and Kilmun, these places to be served from Blairmore; and from Hunter's Quay, Kirn, and Innellan, to be served through Dunoon. The Dunoon service would be augmented by 50 per cent. It was estimated that elimination of calls at piers, and reorganisation of sailings would enable the annual loss on Clyde steamers to be cut by about one-half, and that introduction of the new vessels would much improve the position.

Collision under Park Avenue, New York.—Twenty-seven persons were injured when two trains, crowded with Thanksgiving Day passengers, collided in the tunnel under Park Avenue leading to the Grand Central terminus of the New York Central System.

British Railways Coal and Steel Carryings.—British Railways cleared 406,900 tons of coal from deep-mined pits and open-cast sites last weekend, making a total of 3,244,520 tons for the week. During the week ended November 17 iron and steel conveyed from the principal steelworks totalled 196,046 tons.

Railway Benevolent Institution.—At its meeting on November 21 the board of the Railway Benevolent Institution granted annuities to 12 widows and three members involving an additional liability of £257 8s. a year; 18 gratuities were also granted amounting to £187 10s. to meet cases of immediate necessity. Grants made from the casualty fund during October amounted to £341 2s. 6d.

Stephenson Locomotive Society Annual Dinner.—For the first time the Stephenson Locomotive Society held its annual dinner in Birmingham, at the Imperial Hotel, on November 3. Nearly ninety members and guests assembled under the chairmanship of Mr. W. H. Whitworth, Vice-President of the Society. The toast of the Society was proposed by Mr. D .S. M. Barrie, Publicity & Public Relations Officer, Railway Executive, and Mr. A. J. Boston, Chairman of the Society, responded. Those present included Mr. George Dow, Publicity & Public Relations Officer, London Midland Region.

London Transport Dramatic Club.—On November 22, 23, and 24, the London Transport Dramatic Club gave three performances of the amusing farce "The Happiest Days of Your Life," by John Dighton, at the Rudolf Steiner Hall, Park Street, N.W. We have seen many performances in the past given by the London Transport Dramatic Club and have no hesitation in saying that the acting in this play fulfilled the high standard that one now expects from the performers in this club. Miss Evelyn Peck was excellent in the part of Miss Whitchurch, a very different part to that which she played earlier in the year as Mama in "I Remember Mama." An amusing performance too was given by Edward Hackshaw as Rainbow, the porter, at Hilary School for Boys. The production, as usual, was skilfully handled under the direction of Miss Gladys Burchell.

Southern Region Lecture & Debating Society.—On December 11 Mr. F. J. Wymer, Assistant Chief Regional Officer, Southern Region, will read a paper on "Transport and its Effect on the Distri-

Mr. John Elliot in the Midlands

Mr. John Elliot, Chairman of the Railway Executive, with Mr. J. W. Watkins, Chief Regional Officer, London Midland Region, and other railway officers, inspecting Basford Hall traffic yard, Crewe, on the occasion of a recent tour of inspection of the Crewe and Birmingham areas

bution of Population," to British Railways, Southern Region, Lecture & Debating Society. The meeting will be held at the Chapter House, St. Thomas' Street, S.E.1, at 5.45 p.m.

Institute of Transport.—The annual general meeting of Corporate Members of the Institute of Transport will be held on December 17 at 5.45 p.m., at 80, Portland Place, London, W.1.

Institution of Railway Signal Engineers.—At a meeting of the Institution of Railway Signal Engineers to be held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, at 6 p.m. on December 14, Mr. A. N. McKillop will read a paper entitled "Non-Token Methods of Single-Line Working."

South Wales & Monmouthshire Railways & Docks Debating Society.—Mr. W. P. Allen, Member, Railway Executive, will deliver a paper on "The Relationship of Management and Labour in the Transport Industry" to the South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, at the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m., on December 12.

North Eastern Region Station Closed.—The North Eastern Region Station at Pinchinthorpe was closed on October 29 to all traffic. For passengers the United Automobile Services Limited operates a bus service between Redcar, Guisborough, and Stokesley, which passes close to the station, while parcels traffic is being dealt with by British Railways motor operating from Guisborough.

Forthcoming Meetings

December 1 (*Sat.*).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 3 p.m. Question time: "Do you know your Railway History?"

December 1 (*Sat.*).—Electric Railway Society, at the Fred Tallant Hall, Drummond Street, N.W.1, at 3 p.m. Annual general meeting.

December 3 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Annual General Meeting. "Independent Hauliers and the Transport Act, 1947," by Mr. W. Fraser.

December 4 (*Tues.*).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. Discussion on "The Servicing of Electrical Instruments in Large Industrial Undertakings," by Mr. A. J. Young.

December 5 (*Wed.*).—Railway Students' Association, London School of Economics & Political Science, Houghton Street, Aldwych, W.C.1, at 6 p.m. "London's Next Tube," by Mr. F. G. Maxwell, Operating Manager (Railways), London Transport Executive.

December 6 (*Thu.*).—Engineers' Guild, Metropolitan Branch, at Caxton Hall, Caxton Street, Westminster, S.W.1, at 6 p.m. Films: "The Port of Manchester," and "Voices under the Sea."

December 6 (*Thu.*).—Institute of Transport South Wales & Monmouthshire Section, at High Street Station, Newport, at 7.15 p.m. "Transport in Northern Rhodesia," by Mr. H. J. Thom.

Until December 15 (*Sat.*).—Railway Ticket Exhibition, at Hove Public Library.

Railway Stock Market

Uncertainty has again ruled in stock markets, which continued to take their cue from British Funds, and the latter, although showing a firmer trend at the time of writing, remained unsettled on more talk of the possibility of a further increase in the Bank rate. The recent heavy fall in gilt-edged brought in buyers earlier this week, because it was pointed out that at current levels most stocks have been adjusted to a basis which more than anticipates a 3 per cent. Bank rate, and that if the latter remains at 2½ per cent. over the next few weeks, there may be scope for a good rally in prices. There is now a tendency for the view to gain ground that industrial shares may be overvalued in relation to British Funds, more particularly the shares yielding between 4½ per cent. and 5 per cent., because E.P.T. will presumably mean there will not be much prospect of higher dividend payments in future. It seems apparent that a period of uncertainty in stock markets will continue until it is known (1) whether there is to be a further increase in the Bank rate in the near future, (2) if there will be U.S. aid for our rearmament programme, and (3) whether measures to deal with inflation and stop the drain on the sterling area gold and dollar reserves are proving effective.

The continued uncertainty in stock markets has failed to divert attention to overseas securities. Indeed, gold mining shares have lost ground, dollar stocks have fallen back with Wall Street, and there has been little improvement of business in Foreign rails. Nevertheless, it seems likely that, if E.P.T. is as severe as is being predicted in some quarters, there will be a switching of activity to the securities of overseas companies unaffected by this new tax.

Leopoldina stocks attracted buyers this week in the hope that Brazil will release the compensation money in the near future. The ordinary stock improved to 10¼, the preference to 27½, the 4 per cent. debentures to 99½, and the 6½ per cent. debentures to 146. Leopoldina Terminal 5 per cent. debentures were 99½, the same as Leopoldina 4 per cents.; while the ordinary units were 1s. 7½d. United of Havana stocks reflected more profit-taking in the absence of any further news of take-over developments; the 1906 debentures fell back to 18. Manila "A" debentures were easier at 76 and the preference shares changed hands around 8s.

Mexican Central "A" bonds came back to 85, and National of Mexico 4½ per cent. non-assenteds were 42½. Canadian Pacifics also reflected the trend of Wall Street and were back to $64½. La Guaira ordinary stock was 95 and Bolivar "C" debentures 48. Nitrate Rails kept at 25s. 3d. and Taltal shares at 19s., Brazil Rail gold bonds were 5½ and San Paulo 10s. units 14s. 6d. White Pass Yukon 4½ per cent. first debentures were 28⅞ and the 5 per cent. convertible debentures 30⅝.

Road transport shares showed firmness generally although West Riding were marked down to 44s. 6d. Southdown were 96s., Lancashire Transport 53s. 9d., Scottish Motor Traction 5s. shares have been active up to 17s. 7½d., and Maidstone 6½ per cent. preference changed hands around 22s. B.E.T. deferred stock was £460.

Engineering and kindred shares moved irregularly and in many cases were moderately lower on balance. Little selling has been in evidence, but, on the other hand, buyers have been holding off awaiting news of the E.P.T. plans, which are to come into force on January 1. Many engineering and kindred companies, it seems, will earn larger profits as time proceeds because of rearmament work; but if E.P.T. is at 100 per cent., as is being suggested, it will leave little chance of higher dividends. Nevertheless, on the basis of unchanged dividends, yields in many cases are attractive at current prices. Guest Keen, for instance, yield 5⅛ per cent., John Brown nearly 6⅛ per cent., Babcock & Wilcox 4⅞ per cent., Vickers 5⅛ per cent., B.S.A. over 4¾ per cent., and Cammell Laird 5 per cent.

Good yields are also shown by shares of locomotive builders and engineers. Hurst Nelson, at 59s., yield 6¼ per cent. on the basis of last year's 20 per cent. dividend; and Birmingham Carriage, at 37s. 7½d., yield over 5¼ per cent. Charles Roberts 5s. shares have changed hands around 25s. In this case the market is hopeful of a special distribution for shareholders if there is a tax settlement in the company's favour. Wagon Repairs 5s. shares have eased to 11s. 9d., Vulcan Foundry were 25s. 6d., Beyer Peacock 32s., Gloucester Wagon 14s. 6d., and North British Locomotive 18s. 4½d. Share values have failed to respond to recent news of important overseas locomotive contracts.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1949/50	No. of week	Aggregate traffics to date: Total 1950/51	Aggregate traffics to date: Increase or decrease
South & Cen. America	Antofagasta ...	811	16.11.51	£ 173,890	+ £ 86,150	46	£ 5,630,500	+ £ 2,555,376
	Costa Rica ...	281	Oct., 1951	c1,244,055	+ c228,863	18	c4,947,302	+ c586,239
	Dorada	70	Oct., 1951	36,894	— 515	43	361,117	— 30,116
	Inter. Ctl. Amer....	794	Sep., 1951	$923,671	— $76,767	39	$9,945,698	— $281,585
	Paraguay Cent. ...	274	16.11.51	£310,602	+ £108,499	20	£6,634,994	+ £2,740,467
	Peru Corp. ...	1,050	Oct., 1951	$8,381,000	+ $622,000	18	$32,898,000	+ $1,692,000
	" (Bolivian Section)	66	Oct., 1951	Bs.18,324,000	+ Bs.5,859,000	18	Bs.59,719,000	+ Bs.16,745,000
	Salvador	100	Sep., 1951	c115,000	+ c40,000	13	c381,000	+ c113,000
	Taltal	147	Oct., 1951	$1,639,000	+ $317,000	18	$7,943,000	+ $2,142,700
Canada	Canadian National†	23,473	Sep., 1951	17,646,000	+ 279,000	39	153,415,000	+ 21,228,000
	Canadian Pacific† ...	17,037	Sep., 1951	11,990,000	— 247,000	39	105,001,000	+ 14,030,000
Various	Barsi Light* ...	167	Oct., 1951	31,312	+ 7,657	29	243,592	+ 42,060
	Egyptian Delta ...	607	10.4.51	17,513	— 267	4	17,513	— 267
	Gold Coast ...	536	Aug., 1951	220,509	+ 16,972	21	1,280,126	+ 109,832
	Mid. of W. Australia	277	Sep., 1951	62,508	+ 23,733	13	169,896	+ 59,039
	South Africa ...	13,398	27.10.51	1,919,368	+ 219,540	30	56,852,532	+ 6,817,681
	Victoria	4,744	Aug., 1951	1,931,917	+ 45,412	9	—	—

* Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1